




# **carolina planning**

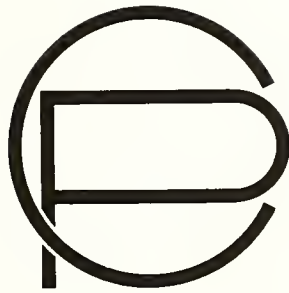
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# **carolina planning**

**A Student Publication of the University of North Carolina**

**Department of City and Regional Planning**

**Volume 1, Number 1**

**Summer 1975**

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**Carolina Planning** welcomes comments and suggestions on the articles published and will be happy to accept new material for future editions from interested persons. Such material should be submitted to the Editor type written, double spaced, and not to exceed fifteen pages length. Additional copies of the journal are available on request from the Department of City and Regional Planning for a \$1.00 prepaid handling charge.

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## foreword

**Carolina Planning**, the student publication of the Department of City and Regional Planning (DCRP) at the University of North Carolina at Chapel Hill, will discuss planning problems and issues in the State of North Carolina. It will emphasize public policy rather than methodologies and theories of planning. Objectives of the publications are:

- (1) To provide a forum for the discussion of planning problems, issues, and techniques related to the practice of planning in North Carolina;
- (2) To enhance the awareness public officials have about planning in North Carolina and elsewhere; and
- (3) To provide for the improvement exchange of planning information between the DCRP and other governmental and academic institutions in the state and nation.

Students from the DCRP will be the primary contributors to **Carolina Planning**; however, contributions from other sources such as the DCRP faculty, professional planners, public officials, and students and faculty from other academic institutions in the State are encouraged.

This first issue of **Carolina Planning** culminates an intensive year of work done by a number of people. The idea for the publication was developed last summer by several DCRP graduate students, who identified the need for such a publication and felt the students in DCRP could fulfill it. Instrumental in this development were Jim Miller, John Carroll, and Lee Corum, and I would like to thank them for their continuous support and assistance throughout this past year. I also want to acknowledge George Hemmens, chairman of the DCRP, and the Editorial Board, faculty members Gorman Gilbert and David Godschalk and student members Jim Foerster, Wanda Lewis, and Chuck Roe, for their valuable contributions to the publication.

My deepest appreciation goes to the Z. Smith Reynolds Foundation of Winston-Salem, North Carolina, for their generous grant that allows **Carolina Planning** to be published semi-annually for the next two years. I would also like to thank the John Parker Trust Fund and the DCRP for their financial contributions to this first issue.

Nancy L. Grden  
Editor, **Carolina Planning**

Since the Department of City and Regional Planning was established in Chapel Hill in 1946 we have had a major concern for the development of high quality public planning in North Carolina along with the education of professional planners and advancement of the art and science of planning. In these years we have had the opportunity to teach many of the professional planners now serving the people of the State, and have watched and worked with the rapidly growing planning activities in our city, county and state governments. With the widespread concern over the future of our environment, the current problems of the economy and planning for growth and change, and the widespread concern for efficient and fair government action, the issues of public planning need to be widely discussed, and the experiences of different local governments, citizen groups, and the university community need to be shared. We are very pleased to be able to offer this new magazine as a forum for discussion of planning in and for North Carolina. This magazine was made possible thru the efforts of students and alumni of the Department of City and Regional Planning and the generosity of the Z. Smith Reynolds Foundation. The students initiated the magazine out of their concern that a closer tie be created between citizens, professional planners and the University, and they provided the time and effort to make this happen. The alumni of this Department from throughout the United States made possible the production of this first issue thru their contributions. A generous grant from the Foundation assures the first two years of publication. At the end of this two years we hope to be operating on a self-sustaining basis, and we hope that this magazine will become a permanent feature of public life in North Carolina.

George C. Hemmens  
Chairman  
Department of City and Regional Planning  
University of North Carolina

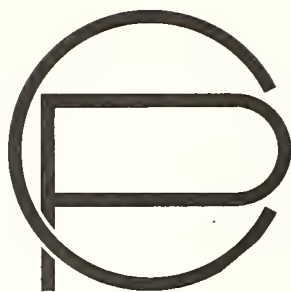
## introduction

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# water and sewer extension policies as a technique for guiding development

**Michael Nugent**, who concentrated in land use and environmental planning at UNC, received his Master of Regional Planning in May. He is currently employed by the Brunswick County Planning Department, Southport, North Carolina. This article is excerpted from a paper winning first place in the Awards Competition for Outstanding Student Papers and Projects, sponsored by the Student Planning/Network during March, 1975.

by **Michael Nugent**

It would be difficult, no doubt, to find any relatively informed observer of urban affairs who would not decry the many undesirable aspects of urban sprawl. Planner and decision-maker alike are too well aware of the substantial costs associated with "leap frog" development on the urban fringe.<sup>1</sup> Cities have grown and continue to grow in this extremely inefficient manner while possessing a potentially potent tool for regulating the location and timing of this development—the provision of municipal water and sewer services.

In the past, it has not been the practice to formulate water and sewer extension policies to **guide** development; there has been little choice but to **follow**. As Kenney points out in **Urban Water Policy As An Input In Urban Growth Policy**<sup>2</sup>, "... typically, the provision of these facilities and services is provided in response to a **need**, with no attention to the shaping **effect** on the location and pattern of urban land use." This "catch up" game is not entirely the fault of past water and sewer extension policies. It is just as much evidence of the absence or impotence of traditional land use controls and their administrators to regulate land development on the urban fringe.

In order to effectively regulate development, any action instrument must be designed and implemented with its legal implications as a major consideration. Because the employment of utility extension policies to guide development has been limited in the past, litigation challenging these policies is likewise lacking. Nevertheless, with increased attention being directed to the use of this device for guiding development, legal challenges will inevitably follow, and it would be helpful to anticipate some of the issues. This paper attempts to expose and examine important dimensions of water and sewer extension for guiding development and the legal issues associated with these policies that can, if not considered, bring about legal defeat.

To simplify the discussion, we will assume that the municipality is the sole provider of water and sewer service within its boundaries. In reality this is often not the situation, with utilities being provided by various combinations of municipalities, counties, special districts, or private companies. Several issues

discussed will be present no matter what form the service provision takes; however, the statutory authority and case law interpretation will often vary among the different utility providers.

As water and sewer service extensions often occur simultaneously and have similar legislative provisions, they will be treated singularly throughout this paper. Unique issues may arise with respect to extending one without the other; however, it is beyond our scope to examine the plethora of hypothetical legal questions which could appear.

In order to employ a water and sewer service extension policy to effectively guide development, the critical dimensions of these utilities must be identified. Critical dimensions are those elements of water and sewer service that make it valuable for guiding and timing development. The dimensions are: (1) the physical existence or absence of the facilities, (2) rates charged for service provision, (3) fees charged for initial connection of the service, and (4) special assessments which may be levied against developers and/or property owners for the initial provision of service infrastructure into an area. Of these elements, the physical existence of the service will receive the major emphasis, as practical experiences have concentrated primarily on this dimension.

If water and sewer service is to have an impact on the development of a particular parcel of property, its existence must be a prerequisite for that development to occur or at least be a highly desirable precondition. Alternatives to a municipally-supplied utility must be limited. In locations where soil conditions, ground water, density of development, and/or other physical features prohibit on-site water acquisition and/or waste water disposal, the significance of the availability of municipal utilities is enhanced.

One currently-used approach is the use of standards determined and adopted by local health departments to restrict the use of septic tanks and possibly wells in areas exhibiting particular physical features. Conformance with these regulations may be required for the issuance of building permits, the approval of subdivision plats, and possibly the granting of special or conditional use permits.

The availability of water and sewer service has two basic dimensions in guiding urban development—spatial and temporal. Spatial refers to the geographic location of water and sewer service availability and indicates which areas are "open" for development. The temporal element simply adds an additional dimension, indicating when these areas will receive service extension.

There are usually two policies of local government which affect these dimensions of water and sewer service extension—the establishment of an urban services area for which the municipality is responsible and the capital improvements program. The urban services area indicates the geographic area in which utilities are projected to serve within a given long-range time frame. With respect to legal considerations, the urban services area is not as significant an issue as is the capital improvements program. The capital improvements program has important legal significance since it acts as a policy "guarantee", in coordination with other development controls, indicating when a particular parcel will be "open" for development. In order for a water and sewer extension policy to be effective, the capital improvements program must be backed by the commitment of the governing authority and have the confidence of the development community.

Rates may apply to actual payment for service, or to the fees charged for initial connection to the city system. Rates do not seem to possess the potential of physical availability in encouraging or discouraging development.<sup>3</sup> This relative weakness is due in part to the necessity of the service (inelastic demand) and the fact that generally the ultimate purchasers of property (in residential use), not the development decision-maker, pay this service charge.

Differential rate schedules do exist and are presently used rather extensively. Some vary with the quantity of water used and waste water discharged. Another approach is to apply rate schedules to users within the corporate

**physical existence**

**user charges and connection fees**



limits of a municipality different from those applied to users outside of these boundaries.

### **special assessments**

Special assessments or benefit assessments may be levied against properties to which municipal services are initially being introduced. These assessments are used by the municipality in financing service extensions and may be employed to cover the costs of streets, water and sewer lines, or other service provisions. The actual charge levied may be determined by a rate applied to the foot frontage or acreage of the property being serviced. These costs are generally borne by the developer and are either passed on to the property purchaser or are reimbursed by the municipality as others are connected to the line.

The critical dimensions of water and sewer service extension presented above are not set forth as the only elements for consideration in the adoption of an extension policy. An evaluation of these and other critical dimensions is desirable before a water and sewer extension policy to guide development is adopted and implemented.

### **legal considerations**

The legal issues fall into three categories—constitutional, statutory, and case law. Constitutional issues are examined in reference to both the United States Constitution and the North Carolina State Constitution. Statutory provisions, which authorize and to some extent limit the prerogative of a municipality to employ a water and sewer extension policy, will be presented in the context of the North Carolina General Statutes. It is beyond our scope to exhaustively examine all case law relating to water and sewer extensions. However, several frequently-occurring issues selected for treatment here are: (1) the discretionary decision to extend, (2) justification for extension refusal, (3) pricing, (4) water and sewer extension moratoria, (5) annexation and (6) special assessment. These issues are not all-inclusive but were selected to provide a brief exposure to those legal questions which might arise.

### **the discretionary decision to extend service**

No real controversy arises over the authority which a municipality possesses to operate and expand a water and sewer system. However, three initial questions should be answered in each specific situation: (1) who has the authority to make extension decision, (2) what are the legislative limitations on this authority, and (3) what is the nature of the decision (i.e., legislative as opposed to administrative).

As has been the practice throughout this paper, the following discussion will focus entirely on the municipality's role in operating these utilities and adopting and implementing an extension policy. In the event that water and sewer service is provided by a multiplicity of agencies or by an authority other than the municipality, a coordinated approach still might be employed in a water and sewer extension policy. If complex institutional arrangements exist, it would be essential to examine the various enabling statutes which apply to each as an initial step in developing a coordinated, guidance-oriented utility policy.

In North Carolina, the municipality is authorized by the State Legislature to provide water and sewer service within and often outside of its corporate limits. The decision to extend service will generally be legislative in nature and is at the discretion of the local governing authority.<sup>4</sup> The courts are strongly inclined to uphold the discretionary nature of this decision as long as the municipality has not abused it or based a decision on unreasonable conditions.<sup>5</sup>

The North Carolina General Statutes authorizing the municipality to operate water and sewer systems are quite general, and limitations to the extension of service must necessarily be determined by the courts. The Statutory provision quoted below illustrates the ambiguity of these limitations as stated in the enabling legislation.

A city shall have authority to acquire, construct, establish, enlarge, improve, maintain, own, and operate many or all of the public enterprises defined in this Article . . . A city shall have full authority to protect and regulate any public enterprise system belonging to it by



adequate and reasonable rules and regulations. (N.C.G.S. Sec. 160A-312)

As is in fact the case, the courts have been relied upon to interpret what is a reasonable exercise of municipal discretionary authority in the provision and extension of water and sewer services.

The same section of the North Carolina General Statutes (Sec. 106A-312), which authorizes a city to provide services within its corporate limits, also authorizes service outside of these boundaries.

. . . A city may extend and operate any public enterprise outside its corporate limits within reasonable limitations, but in no case shall a city be held liable for damages to those outside the corporate limits for failure to furnish any public enterprise service.

This provision enhances the city's right to exercise its discretion in providing services outside the corporate boundaries because of fewer limitations and less concern for judicial reprisal. The courts of North Carolina have substantially upheld the exercise of this discretion.<sup>6</sup>

The real legal issues concerning water and sewer extension policies arise with the exercise of the municipality's discretionary authority to provide and extend these utilities. As one would expect, these issues originate primarily from decisions to refuse service provision or extension.

The primary statutory limitation affecting the municipal governing authority's deciding of whether or not to extend water and sewer services is the reasonableness of the decision. The courts determine if the discretion was exercised in a reasonable manner in specific cases. We can, however, draw certain criteria to constitute a reasonable use of this discretion, as well as the converse.

A basic dichotomy has been established as to what decision-making rationale is valid. Those decisions which have been based on a utilities-related reason have in most cases been upheld, as opposed to non-utilities related reasoning. Disproportionate economic cost of the proposed extension and physical remoteness of the area to be served have enjoyed the support of the courts.<sup>7</sup>

The existence of zoning and a plan which are complementary to the water and sewer extension policy also enhances the probability of a given decision surviving judicial challenge.<sup>8</sup> We cannot stress too much the importance of every implementation device being coordinated with every other one and with a particular growth policy (if it exists) and a plan. In order to effectively regulate the location and timing of development, each action instrument, including water and sewer extension policies, must necessarily complement the objectives of the plan.

Tradition, or what has been the municipality's policy for pricing providing water and sewer service, has played an important role in the courts' acceptance or rejection of an extension decision.<sup>9</sup> Arbitrary variation from traditional practice in the provision of municipal services has been challenged as a violation of equal protection.

Other constitutional issues which may arise from legal challenge of a water and sewer extension policy for guiding development could manifest themselves as accusations against the growth policy or plan rather than the actual implementation technique. However, the refusal to extend a municipality's water and sewer system may well violate specific constitutional rights.

In situations where municipally-supplied water and sewer services are required by the city for the development of a parcel of property, refusal to extend such services may be held by the courts to constitute a taking of development rights without just compensation. However, since the landmark Supreme Court decision in *Euclid*, the courts have issued varying if not seemingly contradictory opinions as to when the regulation of property constitutes a taking. Although numerous zoning cases have been decided in this country, there exists no consistent precedent on which to base the design of a proposed policy.

## **extension refusal justification**

With the imposition of a water and sewer extension policy coordinated with a capital improvements program (and budget), the question of temporary taking may arise. If facilities are required for development approval, and the capital improvements program has scheduled service to a particular area for some time in the future, property owners in that area may well challenge an extension refusal as a taking of their development rights. However, in a guidance system approach, in which all action instruments are coordinated and directed at plan implementation, the entire growth policy would be subject to challenge.

A water sewer extension policy, in and of itself, would probably not be challenged as a violation of the right to travel. Again, allegation would likely focus on the growth policy or ordinance which actually interferes with the right of mobility between municipal boundaries. An extension policy may also be challenged as violating the constitutional right to due process when there is no recourse to development regulation. If coordinated with other land use controls, such as zoning, channels for recourse are provided through special use permits or zoning changes.

The constitutional right to equal protection of the laws appears more frequently than any other constitutional issue in water and sewer extension cases. The problem arises when a municipality, either implicitly or explicitly in the implementation of a utility extension policy, singles out and classifies a specific sect of the population and then affords this sect different rights and privileges from those enjoyed by others similarly situated. One immediately asks the question, how may an extension policy, which by its very nature discriminates to be effective, survive constitutional challenges? First, as indicated in Sec. 160A-312 of the North Carolina General Statutes cited earlier, the city has an explicitly stated liberty to discriminate in the provision of services to consumers outside its corporate limits. Secondly, the courts may permit a particular classification to stand if it is not found to be "based on some inherently suspect or invidious discrimination."<sup>10</sup>

## **service and connection fees**

Legal issues also arise with water and sewer pricing. For example, the distinction between service provided to consumers within the corporate limits vis a vis non-residents assumes substantial importance in a discussion of pricing in both the case law and the statutory provision for service rate schedules. The concept of tradition again appears when considering the legality of pricing policy.

Although connection fees have a singular impact while the rate structure continues as long as service is provided, both will be discussed as one. This is an effort at simplicity, yet a valid one since the legal issues are essentially the same for both. The authority which a municipality possesses to set and charge rates for water and sewer service is granted through enabling legislation enacted by the State legislature. The specific municipal authority appears in Section 160A-314a of the North Carolina General Statutes and reads as follows: "Schedules of rents, rates, fees, charges, and penalties may vary according to classes of service, and different schedules may be adopted for services provided outside the corporate limits of the city."

As illustrated, this section provides for two possible opportunities to differentiate in the rate schedules applied to consumers of the utilities. Classes of service generally apply to varying levels of water consumption and waste water discharge. The provision for higher rate schedules applicable to consumers outside the corporate limits may be employed to discourage development in these areas. However, it is unclear whether these schedules could discriminate among various unincorporated areas.

The case law examined with respect to pricing issues was concerned primarily with contests over rate differentials discriminating against non-corporate residents. Reasonableness again appears as the basic question asked by the courts in determining the validity of a particular pricing policy. The concept of tradition introduced earlier also enters the picture with respect to pricing policy. A change in pricing policy should be based on a utility-related reason, such as increased costs of service provision. Pricing modification imposed

arbitrarily, varying from traditional practice, may violate constitutionally protected rights and is likely to suffer legal defeat if challenged.

It would appear that water and sewer pricing does not possess the potential for affecting the location and timing of development as does the extension and availability of these services. Many legal issues arise that may be impossible to overcome, particularly if the adoption of a pricing policy does not accompany the initial provision of service but is imposed at variance to traditional practice.

**water and sewer moratoria**

Water and sewer moratoria have taken four basic forms as employed in this country: (1) moratoria on the extension of sanitary sewer trunk lines, (2) moratoria on new sanitary sewer connections, (3) moratoria on the extension of water mains and lines, and (4) moratoria in new water connections.<sup>11</sup> These devices are generally recognized as highly effective in the temporary control of development, since the services they provide are often absolutely necessary for development to occur. Most uses of water and sewer moratoria have been urgent responses to environmental problems brought about by development over-loading municipal service facilities. For this reason, they have apparently met with little judicial opposition. As Brower indicates in **Growth Management Through Development Timing**, "Moratoria generally have not been overturned by the courts when they have been directed to solve easily identifiable and quantifiable problems."<sup>12</sup>

Yet the extreme power which these devices possess could lead to their abuse in preventing undesired development. Court acceptance, as indicated, has been positive in the past, but it cannot be expected to continue if municipalities employ the technique for exclusionary and other constitutionally unacceptable reasons.

**annexation**

With respect to annexation, one would expect such decisions to be based on the existing plan (if any) and coordinated with the implementation instruments of the plan. However, this coordination does not always exist in plans, nor is it adhered to by decision-making authorities, and an annexation decision might very well force variation from an adopted water and sewer extension policy. This possible policy deviation results from statutorily-imposed obligations placed on the municipality. This obligation requires cities to provide newly-annexed areas with utility services comparable to those provided within the corporate boundaries at the time of annexation.

The North Carolina General Statutes contain explicit requirements for the procedures and the time frame in providing services to newly-annexed areas (N.C.G.S. Sec. 160A-35 & 47). Plans for extension of utilities are required prior to the public hearing on annexation, and if the annexation will require municipal extensions of infrastructure, the plans must provide for contracts to be let and construction begun within one year from the effective date of the annexation.

The "satellite" annexation of non-contiguous areas is likewise authorized by the North Carolina General Statutes. Section 160-453.26(3) requires that the annexing municipality be able to provide the same level of service to annexed areas that it provides within its corporate boundaries. No mention is made of the time frame for the required service provision.

**special assessments**

Special assessments have been proposed as a means of encouraging development in certain geographic areas since they increase the holding costs of unserved properties with access to utilities. The value of this concept and its potential effectiveness will not be debated. However, substantial legal questions could arise if the rates which are applied to front footage or acreage are varied among geographic areas.

The North Carolina General Statutes (Sec. 160A-216) authorize a municipality to levy special assessments against properties within their boundaries for "Constructing, reconstructing, extending and otherwise building or improving . . ." both water and sewer lines. Section 160A-218 provides indices on which special assessments may be based. Both abutting frontage (foot rate) and acreage or area of land served are included. As well as these generally recognized criteria, the statutes allow for assessments based on value added to



TABLE 1

## LEGAL ISSUES INVOLVED IN WATER AND SEWER EXTENSION

WATER & SEWER ACTIONS	CONSTITUTIONAL	STATUTORY	CASE
Discretionary decision to extend service		N.C.G.S. 160A-312	48 A.L.R. 2d 1222 Greenwood v. Provine (143 Miss. 42)
Extension refusal justification	Equal protection, Due process, Taking, Right to travel	N.C.G.S. 160A-312	Robinson v. Boulder Reid . . . v. Parsippany . . . (89 A.2d 667)
Public Utility Limitations		N.C.G.S. 62-3 (23) d	Reid . . . v. Parsippany . . . . . . Englewood v. . . . Denver (229 P. 2d 667)
Moratoria on Extension	Taking (temporary)		
Pricing of Service and Connections	Equal Protection	N.C.G.S. 160A-314 130-144	Fulghum v. Selma (238 N.C. 100)
Municipal Annexation		N.C.G.S. 160A-35 160A-47	
Special Assessments	Equal Protection	N.C.G. . . 160A-218	

the land served, the number of lots served, or any combination of two or more of these.

Perhaps these statutory authorizations, if carefully applied, could be developed into a legally acceptable and effective policy with assessment rates either encouraging or discouraging development at a particular time.

## conclusions

The potential effectiveness of the provision and extension of water and sewer facilities as a means of guiding the location and timing of development is hardly debatable. In many situations, these services are necessary for development to occur, and the decision to provide or expand facilities is the responsibility of local government. Yet the history of water and sewer provision exposes either a "follow development" syndrome or examples of extension policies which have been struck down by the courts in legal challenges. Judicial defeat may be all that is necessary to destroy government initiative in growth management of plan implementation, thus emphasizing the importance of considering legal validity in the design and implementation of policy.

Throughout this paper, particular considerations have stood out as essential in the establishment of water and sewer extension policies. First and foremost is the necessity of a utility-related reason for extension refusal. The implications of this requirement are many. One may be the necessity of employing an extension policy only in areas which have previously not enjoyed municipal services. Others may include applications only in areas outside a municipality's corporate boundaries, or areas in which facility capacities are presently being approached or exceeded. These implications would require a thorough examination in the policy development stages.

As has been pointed out, coordination of all policies, plans, and implementation devices is absolutely essential. Each element must complement every other element and reflect the municipality's overall goals and objectives with respect to physical development. Piecemeal adoption of water and sewer policy without an examination of its relationship to other implementation techniques may amount to condemnation before the first extension decision can be implemented. The challenge to planners is to take the initiative by developing water and sewer extension policies that will endure over time and be effective in guiding future land development.

Finally, one last concept must be provided for and afforded considerable emphasis. This is the responsibility of a municipality to maintain a commitment to whatever approach it chooses in directing development. If communities



expect to have effective input into the land development process, they must stick by their end of the "bargain" and maintain a commitment over time to policies and plans and earn the recognized credibility of the development community. With respect to water and sewer extension policies, this requires a commitment to capital improvements programs, guaranteeing the proposed facilities at the times projected.

Demand for water and sewer services will continue to exist, and in all likelihood, efforts will continue to be made in the direction of growth management and development regulation. The tool of water and sewer extension policy is a means by which both objectives may be met in an effective manner.

#### Footnotes

<sup>1</sup>Real Estate Research Corporation, **The Costs of Sprawl** (Washington: U.S. Government Printing Office), p. 3.

<sup>2</sup>Kenneth B. Kenney, **Urban Water Policy As An Input in Urban Growth Policy** (Knoxville: Water Resources Research Center), p. 1.

<sup>3</sup>Utility pricing and its effects on urban development is currently the topic for research of a National Science Foundation funded project. This project is presently being undertaken as a cooperative venture at the University of Virginia and Virginia Polytechnic Institute. Perhaps the results of this endeavor will expose further critical dimensions of water and sewer service which may be employed in a development guidance context.

<sup>4</sup>"Right to Compel a Municipality to Extend its Water System" 48 A.L.R. 2d 1222.

<sup>5</sup>*Ibid.*, p. 1225.

<sup>6</sup>**Fulghum v. Selma** 238 N.C. 100.

<sup>7</sup>48 A.L.R. 2d 1224.

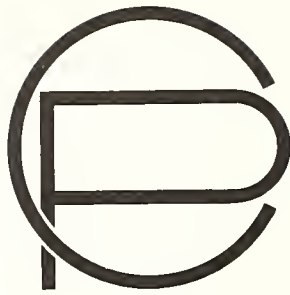
<sup>8</sup>**Josephs v. Town Board** 198 N.Y. S. 2d 695.

<sup>9</sup>**City of Texarkana v. Wiggins et al.** 246 S.W. 2d 622.

<sup>10</sup>**Lawrence B. Robinson et. al. v. The City of Boulder**, Dist. Ct., Boulder County, Colorado, May 20, 1974, p. 24.

<sup>11</sup>Brower et. al., **Growth Management Through Development Timing**, (Raleigh: Office of State Planning), p. 106.

<sup>12</sup>*Ibid.*, p. 116.



# a comparison of land use legislation in western north carolina and vermont

**Benjamin Orsbon**, who concentrated in regional development at UNC, received his Master of Regional Planning in May.

by **Benjamin Orsbon**

Recreational development caught Western North Carolina and Vermont unprepared to guide and manage growth. When shoddy construction and land speculation began to create environmental and social problems, the local citizenry became alarmed. These two relatively isolated areas had never experienced such an influx of outsiders; yet, both hoped new construction would revive their sleeping economies.

Citizens of Western North Carolina and Vermont have existed outside the economic mainstream. Partially because of this fact, both underdeveloped areas still contain valuable scenic resources demanded by affluent outsiders, and they remain dependent on the recreation-hungry urban areas for much of the capital investment in their rural economies.

It can even be argued that the main cause of their underdevelopment is this dependency relationship; much of the productive capital or economic surplus generated by the outside investment in the two areas is drained off by the controlling investors and reinvested elsewhere in more attractive ventures.<sup>1</sup> As a consolation to real development, the localities protract the positive benefits of an increased tax base, short-term construction employment, and low-wage service jobs such as ski lift operators; however, recreation development generates additional costs that must be borne by the local regions.<sup>2</sup> Because of their subservient relationship, Vermont and Western North Carolina are caught in a vicious cycle. Both regions are underdeveloped because they are dependent and dependent because they are underdeveloped. The recent downturn in the economy and the subsequent financial crisis of the recreation industry in North Carolina's mountains illustrates the dependence of the recreation industry on outside investment.<sup>3</sup>

The existence of this dependency relationship has severe policy implications because "as mountain land acquires more and more value for the larger population, local natives are being called upon to be caretakers for the greater public good while their life style is destroyed."<sup>4</sup>

Recreation development in Vermont and Western North Carolina was induced by several different factors. In Vermont, second home development can be attributed primarily to increased demand for skiing and other recreation-related activities in cities such as Boston and New York City, which had easy access to the area due to their proximity and the newly-constructed Interstate highway system.<sup>5</sup>

The rapid development of North Carolina's mountains was generated by factors somewhat different from those mentioned above. The initial impetus for development in Western North Carolina resulted from increasing demand for rural and scenic recreation in reaction to growth in the Piedmont, Florida, and even Northern urban centers. Recreation development was further stimulated by the availability of cheap land that could be aggregated in huge tracts in areas that previously had not needed land use regulations to guide or inhibit growth.

The outcome of this unexpected growth is intuitively obvious. Second home construction in Vermont and in North Carolina's mountains occurred almost exclusively in scenic rural regions where land use planning was virtually nonexistent. As a result, many construction practices degraded the environment and strained the existing life styles and social patterns.

In Vermont, the major environmental threat appeared in the form of deteriorating water resources resulting from the lack of even the most rudimentary site planning. "Developers jammed as many houses as possible onto shallow soil covering impermeable bedrock. They did this without building central sewage systems, depending instead on much cheaper septic tanks for each unit."<sup>6</sup> Consequently, the soil quickly became saturated and caused the seepage of filth into nearby streams.

North Carolina's mountains had a slightly different problem which resulted from different scales of development. Most of the large developments were well planned environmentally because of the huge long-term investment tied up in the area. However, the smaller developments that clustered around the larger ones usually generated two sorts of environmental problems.

One resulted from the fact that people who were not in the land development operation on a large financial scale did not have the capability to hire consultants and generally put together the know-how necessary to design a first class project. Many of the poor land use practices were results of ignorance rather than attempts to cut expenses.<sup>7</sup> (Emphasis added)

An example of this environmental ignorance is provided from a study by David Godschalk. "At one mountain development, salt was being heavily used to free roads of ice and snow. By asking about the possible salt pollution of small streams and lakes, it was discovered that this developer had no idea that salt could even become a pollutant."<sup>8</sup>

The other problem of small scale developments was the way in which they were overwhelmed by gradualism. Most roads leading to major land developments were slowly lined with small projects in a form of strip development. There were rarely any land use controls in effect and once started, strip development quickly became an established pattern.<sup>9</sup>

Even though some recreation development resulted in environmental destruction, developers in both North Carolina and Vermont have stressed environmental preservation and an opportunity to "get away from it all" in their advertising campaigns. Below is an example from a promotional brochure.

You'll be amazed when you see Whittingham Farms for yourself with its lovely common greenery offering complete off-road privacy and rusticity to each homesite. The community parks, beaches, recreational areas, and covered bridges are all designed for the epitome in private use and landscape protection.<sup>10</sup>

Often these brochures are true, but sometimes they contain empty words to trap unlucky buyers.

Environmental problems were only part of the negative effects produced by second home and recreation development. Harmful social and economic

## the rise of the recreation industry

### environmental and social effects of rural encroachment





impacts were generated as well because recreation development often trapped the local landowners in a vicious cycle.

In Vermont, skiers, vacationers, and hunters decided to buy second homes which attracted developers who snapped up the land. Naturally, land prices and property taxes soared. They went so high some residents could no longer afford to work their farms thus forcing them to sell because of the artificial acceleration of land values and subsequent increases in their property tax obligations. The influx of people increased road maintenance, garbage disposal, schools, and police and fire protection so taxes were raised again and more landowners were forced to sell, causing the cycle to repeat itself.<sup>11</sup> (Emphasis added)

The native highlanders of North Carolina also experienced a similar problem. Most mountain landowners valued their land between \$300 and \$500 per acre if the property had easy highway access and if it was flat enough for some type of farming. Otherwise, it was worth only about \$100 per acre if it was not too rocky to grow timber. When developers offered from \$1000 to \$2000 for this land, many older mountaineers sold out since the young had left for the bigger cities to find employment. And because land prices became so inflated, younger people could no longer afford to stay if they wanted to.<sup>12</sup> It can be inferred that rising land prices may not have forced the mountain owners to sell their land as was the case in Vermont, but it certainly did not encourage local owners to keep their property. In at least one case, property taxes were proven to be a burden. "A gentlemen near Boone faced an annual property tax bill of \$8,000 for 200 acres he owned near the rapidly commercialized area."<sup>13</sup> With more and more services being demanded from the county governments, tax supervisors in the two mountain counties most affected by recreation development, Avery and Watauga, predicted that farmers and local landowners will face even higher taxes after the next revaluation.

To add to the distastefulness of the "building boom", local landowners had to watch the developers make huge profits off the land acquired from the local mountain people. Lot prices soared in large developments such as Beech Mountain and Connetsee Falls. To illustrate, the size of the lots at Beech Mountain averaged two-thirds of an acre, with lot prices usually ranging from \$10,000 to \$20,000, with some as high as \$40,000. At Connetsee Falls, one-third of an acre sold for about \$7,900, and half of an acre cost up to \$15,500. Obviously, these land prices precluded anyone but the middle- and upper-income groups from purchasing a second home, and with most of the land supply of Western North Carolina tied up in national forests and parks, much of the privately-owned land quickly fell into the hands of outside speculators and second home owners. As a result, the ruggedly beautiful land that the natives once held for quasi-public benefit, since everyone could enjoy its beauty, has been gobbled up by outsiders for private use.

## the need for regulation

Much of the harm from recreation development has already occurred in the most beautiful and accessible regions; it is too late to effectively regulate development in these areas. But in other areas of Vermont and Western North Carolina, the beauty of the mountains could be insured by prohibiting overcrowding, environmental degradation, and the destruction of the scenic values that initially attracted development. With development increasing over the last few years at a rate of around one-hundred and fifty percent in some mountain counties, North Carolina does not have long to wait before it will be in the same predicament as Vermont, where second home development increased the number of the housing units in the state by one-third.<sup>14</sup>

As a result of all this development, Vermont's citizenry perceived a crisis which caused them to pass their statewide land use planning measure, Act 250. However, the North Carolina Legislature is still apprehensive, even though many of North Carolina's citizens and some conscientious developers are expressing anxiety over uncontrolled development. Local governments have not attempted to regulate developers since they fear such action might cause developers to relocate, resulting in the loss of short-term construction employment and the more long-lived but low salary service jobs. Some type of disincentive might be appropriate for the peaceful communities that wish to



preserve their rural lifestyle. Still, if local governments desire the small benefits that recreation development brings, the fear of relocation can be subdued by establishing homogeneous development standards throughout the mountain region. There would then be no incentive for the developer to relocate because restrictions would be universal. North Carolina could capitalize on this opportunity if the Legislature takes the initiative by passing the Mountain Area Management Act (MAMA).

As it is written, MAMA and Vermont's Act 50 both use the police power to regulate land use and share the common goal of regulating second home and recreational development in environmentally sensitive areas although Vermont chose to regulate development on a statewide basis, while MAMA takes a critical area approach. Similarities between the two bills are described below.

**a comparison of the two acts**

<b>Act 250</b>	<b>MAMA</b>
<b>Bodies Created by the Two Acts</b>	

A nine-member Environmental Board is appointed by the Governor for four years, with a chairman appointed for two years. The Board formulates policies and reviews decisions of lower permit-letting bodies.

Eight district commissions are created, each composed of three members appointed by the Governor for two years. No expertise is required of the commissioners, who carry out the day-to-day responsibilities of holding hearings and issuing development permits.

The Mountain Resources Commission is a fifteen-member body which prepares state guidelines, objectives, policies, and standards for land use plans and critical environmental areas in the region. The Governor appoints twelve of the Commission members from a slate of nominees from the mountain region. The Governor has the sole discretion to choose three Commission members, two of which can reside outside the mountain region. All members except three must have experience in specific environmental and land related fields.

The local governing body, either city or county, files a letter of intent to become a permit-letting agency with the Department of Natural and Economic Resources (DNER). If the local government does not sponsor a permit agency, DNER becomes the permit agency in the area.

**Permit Systems**

Development permits must be filed by businesses, individuals, associations, or state and municipal government agencies. Permits must be filed for commercial or industrial construction on land owned or controlled by a common entity exceeding ten acres (one acre where a town has no zoning or land use controls), housing projects not including subdivisions of ten or more units within a radius of five miles, developments by municipal and state agencies of ten or more acres, or any development above 2,500 feet. Exemptions are allowed for farming, logging below 2,500 feet, for forestry purposes below 2,500 feet, electric power or transmission facilities, and any development under way at the time of the Act's passage.

Every person, before undertaking any development in any area of environmental concern, must obtain a permit. Exemptions are specified for road maintenance, railways, utilities, use of land for agricultural purposes, emergency maintenance or repairs, construction of any accessory building, and completion of any development which was issued a valid permit prior to the passage of the bill, or any development initiated prior to ratification of the Act. Minor development permits are introduced at the city or county level except where the local government did not develop an approved implementation and enforcement program. In that case, the Secretary of DNER is responsible. Major development permits which are introduced to the Mountain Resources Commission are defined as any development which requires permission, licensing, approval, certification, or authorization from

any one of several State boards or which occupies a land or water area in excess in 20 acres; or which contemplates drilling for or excavating natural resources on land or under water or which occupies on a single parcel, a structure or structures in excess of 60,000 square feet. A minor development is any development other than a major development.

#### Appeals of Permit Decisions

An appeal of a district commission's ruling goes to the Environmental Board, which reviews the case in a quasi-judicial fashion excluding all parties except the directly aggrieved. The decision can ultimately be appealed to the Supreme Court of Vermont.

Minor development permit decisions can be appealed to the Mountain Resources Commission by any person directly affected. Major development applications are initially introduced to the Mountain Resources Commission. Any person directly affected by the Commission's decisions can bring final appeal to the Superior Court of the county in which the land is located.

#### Plans Required to Guide Development

Three plans are authorized by Act 250: an interim, a capability and development, and a land use plan. The State Planning Office drafts all three plans.

Land use plans can be developed by the counties and cities, but if they choose not to, the Mountain Resources Commission has the option of preparing the plan. Both the county and the Commission can delegate some or all of its planning responsibilities to the lead regional organization for the region which contains the county.

#### effectiveness of the two bills

"The Vermont Environmental Control Act was never intended to be a comprehensive tool to control all land use problems, only large and small scale developments in unzoned communities."<sup>15</sup> The Act has been successful in this respect by protecting the natural environment from the hazards of development that have come to the attention of the Board.<sup>16</sup> The bill's effectiveness can be attributed to the capability and development plan, the efficiency of the district commissions, the stimulation of local zoning, and the strong commitment of Vermont's citizens to land use planning.

The capability and development plan was designated to coordinate economic development, promote the general welfare of the inhabitants, and reduce the waste of resources which resulted from either excessive congestion or scattering.<sup>17</sup> The plan has had its intended effect on investment and development by influencing location decisions before they were crystallized—indicating where development should occur before an applicant was over-committed on a high risk proposal.

By far the strongest positive factor in controlling development has been the district commissions. Some state officials feared that the district commissions' decisions would reflect their own prejudice or the popularity of the project. Now most officials agree that district commissions have expressed a high degree of technical competence. Facts show that the commissions are less permissive in their permit enforcement than the Environmental Board, which has been accused of underenforcement.

To counteract the Board's underenforcement, an effort has been made to place more restrictions on development and diffuse enforcement responsibility through the implicit stimulation of local zoning and subdivision regulations. The Act encourages local zoning in three ways:

1. The law must be applied to developments of over ten acres in zoned towns and over one acre in unzoned communities.
2. Town plans have the force of law because a district commission

may not issue a permit unless the project complies with local plans;  
and

3. Local officials are made parties to state permit proceedings.

Another important reason that Vermont's Act 250 is a success is citizen involvement. Vermont's citizens have always had a close association with their relatively rural mountainous state once secluded from the "hustle and bustle" of growth. The flood of recreation-seeking outsiders strengthened the cohesiveness of the citizens, creating even more unity in Vermont's fight to control development.

Vermont has always had active citizen involvement, attributable to its Puritan heritage and the small villages that facilitate open discussion and debate in the traditional town meetings. This activism was exploited by wise government officials through the use of public hearings, opinion polls, and grants to finance citizen involvement. Due to the efforts of a statewide environmental group funded by the Ford Foundation, Vermont's citizens were involved in all stages of the drafting and passage of Act 250.

It is difficult to speculate how effectively the Mountain Area Management Act would function in North Carolina. From the previous comparisons of administrative bodies and permit procedures, it is obvious that the institutions are analogous enough to give North Carolina's Act a sturdy framework. All that is needed is a strong commitment by the members of the Mountain Resources Commission, county planning boards, and enforcement agencies to ensure a strong land use guidance mechanism.

Yet very few of the local mountain people in North Carolina are organized and actively involved in the passage of the Mountain Area Management Act. The few public hearings that led to the introduction of the bill in 1974 were meetings of elites. The list of occupations of the individuals attending the hearings sounded like a "Who's Who in the Local Community", with lawyers, real estate men, doctors, and bankers comprising the largest percentage of attendants. Consequently, there was not a true representation of the entire populace—in stark contrast to Vermont.

The lack of local participation along with the desire to limit the appointment power of North Carolina's first Republican Governor in recent years could have led to the amendments that now require more local involvement. Another reason for the incorporation of more local controls could be the growing sectionalism in North Carolina. Increasing industrialization and urbanization in the Piedmont has increased its affluence to the point that some citizens are now mobile enough to use the poorer rural areas at both ends of the State to recreate and escape the problems of urbanism. To assure a place to escape, they want an environmentally-pleasing region; thus, they push for land use controls. Local governments in Western North Carolina are rightly apprehensive of such a gesture that is merely a veiled request to save the mountains because of their recreational and scenic value.<sup>18</sup>

Deceit in the request to preserve the mountains is illustrated by the fact that only the North Carolina coastal and mountain regions have been encouraged to accept region-wide land use legislation. An observer only needs to ride from Charlotte to Durham on I-85 to see that the Piedmont needs land use planning more than the mountain region.

As a result, strong local control of the Mountain Resources Commission, the main policy-making body that formulates the guidelines for land use planning in the region, should make the bill extremely attractive to local governments. The Commission, comprised mainly of local appointees, could guide economic development to areas that would not disrupt the lifestyle and culture of the region.

Vermont had no need for a regionally-oriented system because of the homogeneity of the state and the external origin of their development. In contrast, Western North Carolina is faced with development originating both inside and outside the State, and in both cases, local and outside interests often conflict. No matter what the source, recreation development has proved to be little if any benefit to the local economy. Consequently, recreation



conclusions

development should be regulated along with other types of construction to assure an adequate respect for nature and the desires of the local community.

#### Footnotes

<sup>1</sup>Theotonio Dos Santos, "The Structure of Dependence", **The Political Economy of Development and Underdevelopment**, ed. Charles K. Wilber (New York: 1973), pp. 109-117.

<sup>2</sup>Robert A. Nathan Associates and Resource Planning Associates, **Recreation as an Industry**, Appalachian Research Report #2, (Washington: 1966).

<sup>3</sup>W.H. Scarborough, "Gloom Thick in Resorts", **Winston-Salem Journal**, (September 22, 1974), p. D2.

<sup>4</sup>Joy Lamm, "So you Want a Land Use Bill?", **Southern Exposure**, (Fall, 1974), pp. 53-62.

<sup>5</sup>Fred Bosselman and David Callies, **The Quiet Revolution in Land Use Control**, (Washington: 1971), p. 54.

<sup>6</sup>"The Land, Cry, Vermont", **Time**, (September 26, 1969), p. 50.

<sup>7</sup>David R. Godschalk, **New Communities and Large Scale Development**, Department of Administration, (1972), pp. 77-78.

<sup>8</sup>**Ibid.**

<sup>9</sup>**Ibid.**

<sup>10</sup>**Time**, (September 26, 1969), p. 50.

<sup>11</sup>**Ibid.**

<sup>12</sup>Bill Lee, "Florida Boom—In Our Mountains", **Greensboro Daily News**, (November 13, 1972.)

<sup>13</sup>James Branscome and Peggy Matthews, "Selling the Mountains", **Southern Exposure**, (Fall, 1974), pp. 122-129.

<sup>14</sup>Francis H. Parker, **Land Policy Alternatives for North Carolina**, Dept. of Administration, (1972), p. 23.

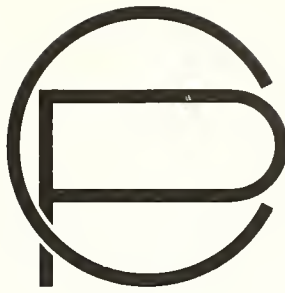
<sup>15</sup>Elizabeth Haskell and Victoria Price, **State Environmental Management: Case Studies of Nine States**, (New York: 1973), pp. 175-177.

<sup>16</sup>**Ibid.**, p. 175.

<sup>17</sup>Arthur Ristau, "Land Use Management: The Vermont Experience", **National Civic Review**, (November, 1972), pp. 554-558.

<sup>18</sup>Joy Lamm, p. 62.





# is north carolina ready for community-based corrections?

by Marilyn Sandorf

The concept of rehabilitation of criminal offenders in prisons seems to be an unrealistic ideal based on simplistic assumptions about causes of crime and a view of crime as a symptom of illness under the medical model that calls for diagnosis and treatment. In summary, there seems little hope for rehabilitation within any prison program because of the influences of the prison environment on the offender. The prospect for rehabilitation may be better outside the prison setting if more careful planning, greater commitment to realistic rehabilitation approaches, and perhaps a greater willingness to take calculated risks on behalf of convicted offenders are part of the rehabilitation effort.

The crucial question is who cares about rehabilitating criminals. Traditionally, society's primary concern has been to separate the offender from the community for the protection of ourselves and our property. In general, society does not care about convicted criminals and has been unwilling to invest funds in appropriate facilities or in modern programs.<sup>1</sup>

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## the juvenile corrections system

## background

Juvenile corrections<sup>2</sup> in North Carolina operates under the authority of the Secretary of the Department of Correction and is administered by the director of the Division of Youth Development. The juvenile corrections system is comprised of the programs operation in seven institutions — five training schools and two diagnostic and evaluation centers — throughout the State.

Upon commitment by the court to the Division of Youth Development, the child is taken to one of the two diagnostic and evaluation centers, depending upon his place of residence, where he spends an average of four to six weeks undergoing testing, evaluation, and medical treatment, when necessary. After completing the initial evaluation, the child follows one of four paths: he is sent to one of the training schools designated for that age range and custody requirement; he is conditionally released to his parents or guardian; he is given intensive clinical treatment; or he is returned to his community for treatment, which is dependent upon the availability of resources there.<sup>3</sup>

In 1972, The Penal Study Committee of the North Carolina Bar Association issued a report entitled, **As the Twig Is Bent**, recommending improvements in

the juvenile justice system. The report found that 50% of the children committed to training school should not be there and observed that "North Carolina has the unenviable distinction of ranking first among all the states in the number of children committed to juvenile training schools per capita."<sup>4</sup> The schools were called "dumping grounds" for unfortunate children where the primary emphasis in most is custody, not rehabilitation.<sup>5</sup>

Since 1972, some changes have taken place in the juvenile corrections system. The status offender, i.e., runaways, truants, etc., can no longer be committed to training school without being first placed on probation by the court.<sup>6</sup> Under State government reorganization, the former Board and Commissioner of Youth Development were abolished and the powers were consolidated in the Secretary of the Department of Correction. The Division of Youth Development was re-organized to reflect this centralization of power, doing away with the relative autonomy of the schools and their directors. A community-based programs section was created in Youth Development to begin assessment and planning for community-based treatment and greater utilization of neighboring communities and citizens.

From 1967 to 1975, Youth Development, which included eight training schools, saw its budget grow from more than \$4 million per year to nearly \$9 million.<sup>7</sup> While total cost continued to rise, the Department saw the reverse happen regarding student population. As of April, 1975, student population had fallen from a 1969 high of 2100 to approximately 980 students.<sup>8</sup> The Division of Youth Development estimates that it is spending more than \$9000 a year to house, feed, and care for each child sent to a training school.<sup>9</sup>

Presently, the system does not possess the capability to measure the effectiveness of its treatment and supervision programs in curbing the return of offenders back into the system. The Department of Correction predicts that within the next year it will be able to document the recidivism rate for all committed juveniles who are released from their custody and supervision.<sup>10</sup> Only then will the system be in a position to assess the effectiveness of its treatment programs, which have been so severely criticized as ineffective and contributing to crime and delinquency in the State.

## objectives of the system



What are the objectives of the juvenile corrections system?

The North Carolina General Statutes state that the purpose of the separate system of juvenile justice is primarily to protect the child from stigmatization as a criminal; thus, we have the origin of the term "juvenile delinquent." Indeed, the law explicitly states that it should be

interpreted as remedial in its purposes to the end that any child subject to the procedures applicable to children in the district court will be **benefitted** through the exercise of the court's juvenile jurisdiction. (italics added) (G.S. 7A-277)

The actions of the district court on behalf of children are:

intended to assure the protection, treatment, rehabilitation, or correction which is appropriate in relation to the needs of the child and the best interest of the State. (G.S. 7A-277)

The law is quite clear in its avoidance of the term "criminal"; it is **remedial, not punitive**, in its intent.

Regarding the purpose and manner in which the State training schools are to be operated, the statutes empower the Department of Correction

to provide the necessary custody, supervision and treatment to control and rehabilitate . . . juvenile delinquents and thereby reduce the rate and cost of . . . delinquency. (G.S. 7A-277)

The statutes provide no guidance to the system beyond these brief references to purpose.

Within the Division of Youth Development, the major emphasis is increasing the diversion from the system of those for whom a commitment to Youth Development is inappropriate—the status offender, the emotionally and physically handicapped, and the pregnant.<sup>11</sup> The primary objectives of Youth Development are: (1) reduction in the average length of stay in the training school; (2) reduction in the number of runaway incidents; (3) reduction in the

number of behavioral incidents; and (4) reduction in the rate of recidivism.<sup>12</sup>

Youth Development plans to achieve these objectives through the implementation of its Student Management Program.<sup>13</sup> This program, designed to affect all areas of a training school student's daily life, uses the behavior "contract" approach. The student, together with a treatment team, sets goals for himself. These goals then become the basis for his advancement in the program and lead, eventually, to his release from the training school. This program was implemented in all the training schools in January, 1975. The emphasis in Youth Development is on system improvement and maintenance. For reasons which will be explored more fully in a later section, the development of alternatives to institutionalization through community-based programs and services are far from implementation.

Revised public and professional expectations of corrections have brought about a transformation in its means and ends during the last several years. Institutions were required, traditionally, to merely hold inmates until ordered to release them. Now both the public and the correctional staff expect prisoners to be, at least, no worse for the correctional experience, and, at most, prepared to take their places in society without further involvement with the law. These revised expectations have led to an awareness that corrections must be linked to the community in every phase of operations.

It is widely agreed that the institutional model has not been successful in curbing potential crime. Community-based corrections is considered by theorists and practitioners as the most promising means of accomplishing the changes in offender behavior that the public demands of corrections.<sup>14</sup>

The term "community-based corrections" has been used to include all correctional activities that take place in the community—from community correctional facilities to traditional probation and parole. The concept has been stretched to include a widening variety of treatment efforts, some of which are "community-based" only in that they are less isolated and confining than the traditional prison.

For purposes of this discussion, the term "community-based corrections" refers to a facility, program, or service located near the juvenile's home or family, which maintains community and consumer participation in the planning, operation, and evaluation of the program. The program may include medical, educational, vocational, social, and psychological guidance, training, counseling, alcoholism treatment, drug treatment, and other rehabilitative services.

A great deal of confusion about community-based corrections exists in both the popular press and professional literature. It is not a panacea, nor is it a new concept. It is an alternative to a system that is outdated, costly, de-humanizing, and unsuccessful.

In a California study of the effects of criminal penalties, it was concluded that since severe penalties did not deter more effectively, since prisons and training schools do not rehabilitate, and since the criminal and juvenile justice systems are inconsistent and have little quantitative impact on crime and delinquency, the best rehabilitative possibilities would appear to be in the community.<sup>15</sup> This reasoning is fairly typical of much current thinking in corrections, and it serves to illustrate the kind of cognitive leap on which enthusiasm for community-based treatment is founded. If our correctional institutions do not rehabilitate, and if the stated goal of corrections is to reduce recidivism through integration of offender and community, it seems irresistibly logical that treating the offender without removing him from society will be more effective. Unfortunately, while one may express the opinion that, since correctional institutions are not effective, then one **might as well** retain offenders in the community, it cannot be assumed without adequately controlled research that the best **rehabilitative** possibilities are to be found in the community.

The most rigorous research designs generally have elicited the finding that offenders eligible for supervision in the community in lieu of institutionalization do **as well** in the community as they do in prison or training school. When intervening variables are controlled, recidivism rates appear to be about the

## community-based corrections



same.<sup>16</sup> Robert Martinson, surveying 231 rehabilitation studies, concludes that "with few and isolated exceptions, the rehabilitative efforts that have been reported so far have had no appreciable effect on recidivism."<sup>17</sup> However, in summarizing the research done on community-based programs, he notes that

On the other hand, there is one encouraging set of findings that emerges from these studies. For from many of them flows the strong suggestion that even if we can't "treat" offenders so as to make them do better, a great many of the programs designed to rehabilitate them at least do not make them do worse. And if these programs did not show the advantages of actually rehabilitating, some of them did have the advantage of being less onerous to the offender himself without seeming to pose increased danger to the community. And some of these programs—especially those involving less restrictive custody, minimal supervision, and early release—simply cost fewer program dollars to administer. The information on the dollar costs of these programs is just beginning to be developed, but the implication is clear: **that if we can't do more for (and to) offenders, at least we can safely do less.**<sup>18</sup>

## constraints

Any plan to move in the direction of community-based corrections would encounter some major obstacles which would impede implementation of such a program.

**Legal.** (1) The Department of Correction is denied the legal authority to consolidate or close any of the training schools. Only the General Assembly has the power to do so. While this provision of the General Statutes has not been amended or changed, the General Assembly did adopt a special provision of the Appropriations Act that gives the Department of Correction the authority, subject to the approval of the Advisory Budget Commission, to redirect the resources of the training schools to other programs within the Department, should sufficient reductions in the population of the training schools be effected.<sup>19</sup>

(2) The Department of Correction lacks the legal authority to contract for services and/or care with local, public, or private groups. This type of authority is essential if the State is to be responsible for developing and coordinating community-based services and residential programs for predelinquent and delinquent youth. A bill that would give the Department this authority is currently before the Legislature.

**Administrative.** (1) The Republican administration is without a political base of support in the overwhelming Democratically-controlled Legislature, to which it must submit its requests for new programs and services.

(2) If attempts to close some or most of the training schools are successful in overcoming opposition in the General Assembly and the special interest groups, there still remains the problems of shutting down operations, transferring personnel, and finding other productive uses for the vacated schools.

(3) Until recently, the Division of Youth Development had no system of data collection. A record-keeping capability is currently being developed, along with a computerized method of storing social demographic data which will be the base of the evaluation and research program.<sup>20</sup>

**Political.** (1) As previously mentioned, the political dichotomy between the administrative and legislative branches of government can be a serious constraint to the implementation of policy and program changes when action of the General Assembly is necessary.

(2) The district court judges of the State, who exercise original jurisdiction in all juvenile cases, are a powerful lobby in the General Assembly. In the 1973 General Assembly, a bill that would have provided for specialization of district court judges in juvenile cases was defeated primarily because of opposition by the judges concerned.<sup>21</sup> This is seen as a serious blow to reform of the training school system in the State. In addition, these judges have been seen by many of the advocates for community-based corrections as a stumbling block to changes within the system.<sup>22</sup>

(3) The training school system in North Carolina is firmly embedded in the



minds of many citizens as the only acceptable way to deal with a delinquent child. There are many reasons for this. First, the system has endured, in virtually its present form, for over one hundred years. Second, most of the schools have become a fixture in the local community; in fact, many of the communities have come to see the schools as being somewhat under their control, a belief the Department of Correction has worked actively to eradicate. Third, the community is wont to see itself as a contributor to the problem of the child in trouble; hence, there is the desire to rid the community of the presence and influence of the young offender.

**Budgetary.** (1) The issue of the cost of financing a community-based corrections system has not been adequately dealt with in this State. It is an issue that should be at the heart of any proposal, and one that should be built into the planning and evaluation processes of the Division of Youth Development.

Benefit-cost analysis, as a technique for assessing economic utility of a public investment project, is part of established budgetary procedures in the field of water resources. The RAND Corporation used benefit-cost techniques in the expenditures analyses that it was doing for its client, the Air Force, thus helping to firmly implant the technique as a tool for public expenditure analysis. Since 1960, many studies have appeared in other fields, including the social sciences, seeking to apply techniques of benefit-cost analysis.

The literature on corrections reflects a growing interest in benefit-cost analysis as a means of determining more systematically which correctional procedures actually "succeed" in terms of return on funds invested. Adams reports that the data from six controlled experimental projects, carried out between 1955 and 1967, permit greater precision in benefit-cost analysis.<sup>23</sup> The use of "new correctional costs" rather than recidivism rates, is taken as the primary index of adjustment in the community. Adams' research suggests that the results of further application of benefit-cost techniques to corrections might be developed and used to achieve optimal performance of the system as a whole.

There are several reasons for introducing the monetary criterion into correctional evaluation. First, we have the fact that many offenders who are institutionalized are widely regarded as not in need of incarceration. No good is served by the process. This means that corrections is being needlessly inefficient, often to a great extreme. In essence, it is wasting scarce resources.

Second, there is wide belief that institutionalization of many and perhaps most offenders is not only needless but also counterproductive; it is harmful to the offender, his family, and the community. It reduces the offender's socio-economic status and potential directly, and punishes his family and community indirectly.<sup>24</sup>

Corrections may be described as an ill-advised use of resources, and the best way of understanding it, from a public investment point of view, is to study it in terms of resources expended and benefits received. Such a study is good not only for understanding but also for action. Lawmakers and policy makers find it easier to make decisions on the basis of economic loss and gain than on any other basis.

While recognizing that political considerations will always influence, if not dominate the choices to be made in juvenile corrections policy and programs, we can still move toward a more rational decision-making process; any gain in rationality brings its own compensation in the form of greater social benefits for a given dollar expenditure. This study of juvenile corrections in North Carolina, then, is premised on the belief that applying objective criteria to an evaluation of policy alternatives can clarify options and reduce reliance upon ideological assertions, political horse trading and undocumented rhetoric.

Although there are many political factors that inhibit fully rational and explicit policy deliberations, the present section sets forth a normative decision model for determining a State juvenile correction policy. The model uses a rational choice paradigm that assumes the end of decision making to be the maximizing of the State's juvenile correction objectives, within existing constraints. Under this paradigm, the selection of an optimum correction strategy involves the following steps:

**benefit-cost analysis:  
a tool for decision-making**

## **specify state juvenile correction goals and objectives**

Federally-sponsored study commissions have set forth a number of national objectives for juvenile corrections. These multiple objectives fall into broad economic, social, and environmental categories. North Carolina should evaluate the work that has been done nationally and devise goals and objectives that are responsive to the needs and problems of this state.

## **formulate alternative strategies**

There are a range of correction programs and alternative courses of action that may be combined in various ways to achieve the State's goals. Among the available options are the use of intensive probation, group homes, foster homes, youth services bureaus, "day care", and guided group interaction programs.

## **determine constraints**

In practice, there are constraints—political givens, institutional weakness, statutory and other legal provisions, limitations on physical resources, and budget ceilings—which delimit a set of feasible alternatives and the success with which each can be pursued.

## **evaluate the alternatives**

The implementation of each alternative generates a stream of costs and benefits that accrue over time. For comparative purposes, programs are implemented on a pilot basis using experimental or quasi-experimental research design methods calculating benefits and costs

## **the decision rule**

A rational choice of a correctional program requires the selection of the strategy alternative for which the net value is highest.

## **conclusion**

The juvenile correction system in North Carolina is at a critical point in its history. There is dissatisfaction with the present system—a feeling of growing concern that something must be done to re-work it, to make it respond to the needs and problems of those young people who are placed in it by the court.

This interest in changing the system exists at all levels—private citizens, special interest groups, and professional organizations. Local, state, and federal governments have all expressed their concern that the present emphasis on institutionalization give way to a more humane, effective and, indeed, economically efficient method of dealing with the juvenile offender in our society.

Because of the experimental nature of all corrections programs, benefit-cost analysis must be built into the evaluation phase of the planning cycle. The Department of Correction is gearing up for data collection and analysis and has built up a strong research and evaluation staff. It is at this point that benefit-cost analysis could be built into evaluation efforts within juvenile corrections. For in a society where most people-changing programs are seen as impacts upon resources as well as upon persons, benefit-cost analysis is likely to become increasingly important in program evaluation.



### Footnotes

<sup>1</sup>Mason P. Thomas, Jr. "The Criminal Justice System in North Carolina: Summary and Comment," **Popular Government**, Vol. 40, (Fall, 1974), p. 58.

<sup>2</sup>Juvenile corrections is a component part of the juvenile justice system which is comprised of local law enforcement agencies, juvenile detention, the district court, juvenile probation and aftercare, and juvenile corrections.

<sup>3</sup>North Carolina. Division of Law and Order, Department of Natural and Economic Resources, **The Juvenile Justice System Master Plan**, (Raleigh: The Division, 1974).

<sup>4</sup>North Carolina Bar Association, Penal Study Committee, **As The Twig Is Bent**, A Report on the North Carolina Juvenile Corrections System, (May 1, 1972), p. 4.

<sup>5</sup>**Ibid.**, p. 3.

<sup>6</sup>Mason P. Thomas, Jr. "A Summary of Legislation Affecting Juvenile Corrections by the 1973 General Assembly," Institute of Government, University of North Carolina at Chapel Hill, (1973).

<sup>7</sup>From a telephone interview with Carol Smith, special assistant to the Director of Youth Development, April 9, 1975.

<sup>8</sup>**Ibid.**

<sup>9</sup>North Carolina. Division of Youth Development, "Tomorrow in Youth Development," (1974), p. 3; and from a telephone interview with Glen G. Williams, Director, Research and Evaluation, Department of Correction, April 9, 1975.

<sup>10</sup>From a telephone interview with Glen G. Williams, Director, Research and Evaluation, Department of Correction, April 9, 1975.

<sup>11</sup>**Ibid.**

<sup>12</sup>**Ibid.**

<sup>13</sup>**Ibid.**

<sup>14</sup>See, for instance, Committee on Community-Based Programs, "A Proposal To Establish A Comprehensive System of Community Services For Children in Trouble in North Carolina," prepared for the Commissioner of Youth Development (September 11, 1972); Eleanor Harlow, et al., **Community Based Correctional Programs**, Center For Studies of Crime and Delinquency Topics, (Washington: Government Printing Office, 1973); President's Commission on Law Enforcement and Administration of Justice, **The Challenge of Crime in a Free Society**, (Washington: Government Printing Office, 1971); President's Commission on Law Enforcement and Administration of Justice, **Task Force Report: Juvenile Delinquency and Youth Crime**, (Washington: Government Printing Office, 1968).

<sup>15</sup>Carol Crowther, "Crimes, Penalties, and Legislatures," **Annals of the American Academy of Political and Social Sciences**, Vol. 381 (1969), pp. 147-158.

<sup>16</sup>Robert Martinson, "What Works?—Questions and Answers About Prison Reform," **The Public Interest**, Vol. 35, (Spring, 1974), pp. 22-54.

<sup>17</sup>**Ibid.**, p. 25.

<sup>18</sup>**Ibid.**, p. 48.

<sup>19</sup>Thomas, **op. cit.**, p. 10.

<sup>20</sup>From a telephone interview with Glen G. Williams, Director, Research and Evaluation, Department of Correction, April 9, 1975.

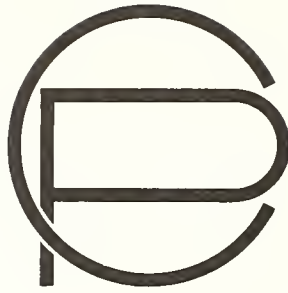
<sup>21</sup>Thomas, **op. cit.**, p. 2.

<sup>22</sup>**Ibid.**

<sup>23</sup>Stuart Adams, "Is Corrections Ready for Cost-Benefit Analysis?" Revised version of a paper presented at the 98th Congress of Corrections, (Washington: Department of Corrections, August, 1971).

<sup>24</sup>Daniel Glaser, **Routinizing Evaluation: Getting Feedback on Effectiveness of Crime and Delinquency Programs**, Center For Studies of Crime and Delinquency, National Institute of Mental Health, Crime and Delinquency Issues, (Washington: Government Printing Office, 1971); also, President's Commission on Law Enforcement and Administration of Justice, **The Challenge of Crime in a Free Society**, (Washington: Government Printing Office, 1971).





# using land treatment for municipal wastewater disposal

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by **Winston Harrington**

The term "land treatment" refers to a family of wastewater disposal technologies in which the effluent is deposited onto the land rather than discharged into the surface waters. In such a system, the land itself assumes some of the treatment function, with the soil and its vegetative mat acting as a giant filter, capturing or decomposing pollutants while the water itself evaporates or percolates to groundwater.

Although land disposal methods were at one time fairly common in the United States, they fell into disuse around the turn of the century and were replaced by the treatment technology still most common today: primary treatment (screening and settling), often followed by secondary (biological) treatment, with the effluent ultimately discharged into surface waters. At this time, the use of land treatment is largely confined to the Southwest (425 or 493 land application sites in the United States).<sup>1</sup>

It has been recognized for some time that conventional secondary treatment may not meet the increasingly stringent limitations on the effluent discharged into receiving waters. Until recently, the usual response has been to plan for even more extensive chemical and biological ("tertiary") treatment before discharge. However, the enormous expense involved in these treatment alternatives has prompted a re-examination of land application methods, and it has been found that land treatment often enjoys a clear economic advantage over "conventional" advanced waste treatment systems. At the same time, though, other implications of land treatment methods are not so clear. This essay is a brief comparison of land treatment and conventional advanced waste treatment; it invites planners to consider the possible effects of land application on community land use.

Four steps are involved in the land treatment process:

**1. Pretreatment.** Pretreatment destroys pathogens and reduces the suspended solids concentration of the wastewater. Excessive solids concentrations tend to blanket the soil, reducing permeability and leading to anaerobic

conditions. Also, when wastewater is applied to the land by spray irrigation, spray heads may easily become clogged. Although some states require that secondary treatment precede the application of the wastewater to the land, the pretreatment functions cited here can be fulfilled by settling followed by disinfection. "There is no justification at this time for requiring that influent to the land application system receive secondary treatment."<sup>2</sup>

**2. Storage.** A land application facility must suspend operations when the ground is frozen or wet. Accordingly, there must be a reservoir for storage during periods of inclement weather. An alternative to storage which may be applicable in some situations is to allow the discharge of effluent into receiving waters whenever it cannot be applied to the land. Since such discharges would be made only during periods of high flow or low temperatures, environmental damage would not result unless there was a potential for buildup of cumulative pollutants.

**3. Land Application.** The oldest and most common approach to land treatment is irrigation, the discharge of effluent onto the land to enhance plant growth. Water removal is accomplished mainly through evapotranspiration and percolation, and for this reason, a moderately permeable soil is desired. Wastewater constituents are removed in the top few inches of the soil and either accumulate there or are taken up by plants. Effluent can also be applied to the land by means of an overland flow system, which consists of a perforated pipe at the top of a moderate slope (2-6°) and a trench to collect the renovated wastewater at the bottom of the slope. Wastewater constituents are captured by the vegetative mat, not the soil matrix, so this approach is ideal for impermeable soils. Most of the water evaporates or is taken up by plants, though a small amount may run into surface waters. Overland flow is a new technique, and not much is known about the degree of renovation which can be expected. However, its performance in industrial applications has been promising.<sup>3</sup>

**4. Crop Removal.** Crop removal is important in a land treatment system because the value of the crop will provide a return which can be applied against the cost of the system. Moreover, if crops are not removed, some wastewater constituents taken up by plants would accumulate in the soil, eventually resulting in system overload.

The cities of Durham and Chapel Hill, North Carolina, are currently preparing a joint "201" plan for the construction of municipal wastewater treatment facilities. When completed, these treatment works will serve Chapel Hill, Carrboro, and the southern half of Durham. One alternative being considered is the construction of a single regional plant just south of Durham, discharging into New Hope Creek. If this alternative is selected, the plant will open in 1980 with a projected flow rate of 12 mgd, increasing to 21 mgd by the year 2000. In this section, we want to compare the estimated cost of such a plant with the estimated cost of a land treatment facility of comparable size.

In making this comparison, we will assume a discount rate of 7%; this is actually being used in the Durham-Chapel Hill study and is what the Environmental Protection Agency recommends for all 201 and 208 projects.<sup>4</sup> Furthermore, we will assume that for discharge into surface waters, the ultimate oxygen demand of the effluent cannot exceed 15 mg/1, suspended solids cannot exceed 15 mg/1, and phosphorus concentration cannot exceed 1 mg/1. Studies indicate that such stringent discharge limitations are necessary in order to avoid a deterioration of water quality if the B. Everett Jordan Reservoir is ever filled.<sup>5</sup> Achievement of these discharge limitations requires secondary treatment, followed by nitrification and phosphorus removal; these processes define "secondary treatment" for the purposes of this evaluation.

For the land treatment alternative considered here, the site now being considered for the regional plant will be used for pretreatment, which will consist of settling and screening the incoming wastewater, followed by disinfection. The application site itself is located about four miles south, near the junction of Durham, Orange, and Chatham Counties. This is a rural area, sparsely populated, about half forest and half farmland; it is assumed that spray irrigation will be used on the farmland and overland flow on the forested

a cost comparison

areas of the site. The assumed application rate is two inches per week, a representative figure.<sup>6</sup> At two inches per week, a one-mgd flow requires about 130 acres. Therefore, to meet the 22-mgd flow requirements of the year 2000<sup>7</sup>, about 3,150 acres will be needed for application. An additional 300 acres will be needed for a buffer zone around the site,<sup>8</sup> and it is assumed that for storage, 300 acres will be required. This gives a grand total of 3,150 acres necessary to handle the flow anticipated in 2000. This is a considerable amount of land and suggests that a constraint may be imposed on system size by an inability to assemble contiguous parcels of suitable land of the requisite area (on the other hand, the Muskegon, Michigan system covers 15,000 acres<sup>9</sup>).

The source of cost information for tertiary treatment is a 1973 study of waste treatment alternatives for Chapel Hill, prepared by Lamb *et al.*<sup>10</sup> In this study, detailed cost estimates for secondary treatment, plus nitrification and phosphorus removal, were given for flows of 7, 15, and 50 mgd. Interpolation was then used to get costs in the 12-21 mgd range for this comparison.

Since there are so few land application facilities in operation, estimation of land treatment costs is more guesswork than anything else. The principal source of information used here is a study done for EPA by Metcalf and Eddy, Inc., "Water Treatment and Reuse by Land Application."<sup>11</sup> In this report, cost estimates of transmission, pumping, site preparation, distribution equipment, and operation and maintenance were made for hypothetical one-mgd land treatment facilities of various types. With some minor changes, these cost estimates are used here by assuming constant returns to scale (for land treatment, unlike other waste disposal technologies, this is not a bad assumption).

Two other important assumptions need to be made before the cost of land treatment can be computed. First, it was observed earlier that salable crops can be grown on land application sites; the net benefits of such sale are assumed to be 5¢ per 1000 gallons of effluent applied. Actually, experiments at Penn State have shown returns often in excess of this figure.<sup>12</sup> The second assumption is that land prices in the disposal area are \$1,000 per acre. A check with local real estate agents in 1973 showed this to be about the market price.<sup>13</sup>

The table below displays the cost differential between tertiary treatment and land treatment under the assumptions presented above. Evidently, implementation of a land treatment system for Durham-Chapel Hill would result in a substantial savings (about 22%) over "conventional" tertiary treatment. Furthermore, there are some economically attractive features of land treatment which are not brought out by this example. It was mentioned earlier that land treatment technology is not nearly as subject to economies of scale as are conventional technologies. Thus, for small communities, land treatment could offer an even greater economic advantage than it does in this rather large system. In fact, the saving could exceed 40¢ per 1000 gallons for systems with a flow smaller than one mgd.<sup>14</sup>

An important reason for the difference in scale economies is that conventional advanced waste treatment processes, unlike land treatment, require a good deal of chemical or biological expertise, regardless of size. When expertise is not available, the waste treatment plant is operated at far below design efficiencies. This has been a very common occurrence in the United States and was one of the main concerns of the Congress in drafting the Federal Water Pollution Control Act Amendments of 1972.<sup>15</sup>

For simplicity in this example, it was assumed that all capital outlays had to be made at once, at the beginning of the planning period. This is, of course, not strictly true for either tertiary or land treatment. However, tertiary treatment systems can only be expanded in comparatively large increments, for to do otherwise would sacrifice scale economies. A land treatment system thus allows the postponement of capital expenditure, largely avoiding the construction of facilities which will never be needed if growth projections do not materialize.

There is still another advantage of land treatment whose importance is difficult to judge at this time. Surface-water discharge systems which achieve a high degree of waste removal are heavily dependent on chemical additives; the cost

## Cost of Waste Treatment Alternatives

### Tertiary Treatment

Capital Cost	\$12,500,000
Present Value of OMR Cost	9,750,000
Total	\$22,250,000
Average Per Year	\$ 2,100,000
Cost Per 1000 Gallons*	35.0¢

### Land Treatment

Capital Cost:	
Pretreatment	\$ 5,000,000
Land	3,750,000
Transmission	1,180,000
Earthwork	945,000
Distribution	3,780,000
Pumping	1,350,000
Impoundment	300,000
	\$16,305,000
Present Value of OMR Cost	4,860,000
	\$21,165,000

### Less Present Value Of

Economic Benefits	\$ 3,020,000
Land Salvage Value	760,000
Total Present Value	\$17,385,000
Average Per Year	\$ 1,645,000
Cost Per 1000 Gallons*	27.3¢

\* Assuming a flow of 16.5 mgd.



of the chemicals is a major component of operating costs for such systems. If, as seems likely, we are entering an era of frequent material supply shortages, prices of these ancillary chemicals may increase drastically over the life of the project. If so, projections of future operating costs may be grossly underestimated.

The reliability of the comparison presented in the table is dependent on the goodness of the assumptions, some of which are highly suspect. From an economic standpoint, the most critical assumption is that of an application rate. If the rate were one inch per week instead of two, for instance, the cost advantage of land treatment over tertiary treatment in this example would entirely disappear. The reason for the importance of the rate assumption is clear enough: the application rate is inversely proportional to the amount of land required, which in turn determines the requirements for transmission equipment and site preparation.

In a well-designed system, the application rate is set as high as possible such that no constituent of the wastewater appears in quantities exceeding the assimilative capacity of the environment. Each constituent gives rise to a loading constraint, and the smallest of these is then the upper bound for the application rate of the system. Right away, then, the loading rate may depend on the characteristics of the effluent. This may mean that stiff pretreatment standards, as specified in Section 307 of the 1972 Amendments, must be imposed on industries which discharge into municipal land treatment systems. For each constituent, the constraint also depends on the approach to land treatment employed, farming practices used, crops selected, etc., as well as the natural variables of soil type, climate, and slope. The fate of materials applied to the soil is often poorly understood, and hence many of the loading constraints are only crudely known, especially with respect to long-term effects or effects on groundwater. Nonetheless, it appears as though land treatment systems in Piedmont North Carolina will be limited by the hydrologic constraints.

Whenever the hydrologic capacity of the system is exceeded, runoff or ponding will result. Runoff may transport nondegradable pollutants to receiving streams (or degradable pollutants before they are degraded), partially defeating the purpose of the land treatment system. The impact of ponding is more serious mainly because anaerobic soil conditions may be created. Not only can decomposition in an anaerobic environment cause nuisance odor problems, but the population of aerobic bacteria in the soil can be eliminated. When this happens, it may take weeks to reestablish a normal environment, during which time the waste stabilizing ability of the soil filter is severely impaired.

For a spray irrigation system, most of the water applied is removed by evapotranspiration and percolation, while for an overland flow system, the principal removal mechanisms are evapotranspiration and runoff after filtration. For both approaches, then, evapotranspiration is very important. Due to the strong seasonal component of the evapotranspiration rate (the actual rate in July exceeds that of January by about three times in this region), much higher application rates are feasible in the summer than in the winter.

To allow for this circumstance, there is a continuum of system designs: at one extreme, establishment of a constant application rate low enough to be maintained throughout the year, while on the other, impoundment of the wastewater to take full advantage of the high summer rates. In theory, the proper point on this continuum is a solvable problem but one which requires a vast amount of information: on soil, bedrock, vegetative uptake rates, potential evaporation rates, etc. Still, in view of the costs involved, one would expect that a large payoff would attend the solution.

As noted, environmental damage can result when any wastewater constituent exceeds the capacity of the system. For example, accumulation of heavy metals in concentrations toxic to plants or to the animals which consume them may result upon prolonged exposure of the soil to wastewater.<sup>16</sup> Or leaching of nitrates into groundwater may lead to concentrations in excess of safe drinking water levels.<sup>17</sup> For these concerns and others, a great deal of research is

**environmental impacts**

needed to determine the long-term environmental impacts. To be fair, however, it must be pointed out that a correspondingly large amount of research is needed to determine the effects of prolonged discharge of effluent into receiving water, even after advanced treatment.

Besides loading considerations, land treatment has a number of other potential environmental impacts: bacteriological impacts, effects on microclimate, stormwater runoffs, and interruption of the natural water cycle. Limited space does not permit a discussion of each of these effects, but let us turn briefly to the bacteriological and water cycle impacts.

In a land application system, people may come into contact with disease organisms in two ways: wind transport of aerosols from irrigation spray and human consumption of sprayed produce. Historically, the danger from aerosols has proved to be surprisingly small. In the large Berlin and Paris sewage irrigation systems, for example, only one incidence of disease due to aerosol transport has ever been suspected since the system was instituted.<sup>18</sup> In Tallahassee, the incidence of disease in their land treatment system is less than that of city employees as a whole.<sup>19</sup> Moreover, the danger of aerosols from spray irrigation is not terribly different from the danger to people living near trickling plants, and there have been few reports of illness due to trickling filter plant aerosols.

The danger from human consumption of sprayed crops seems to be more possible. In Israel, there was evidence that a cholera epidemic was traceable to spray irrigation of crops consumed by humans, and to be safe, most authorities recommend that crops from land disposal systems be consumed by animals only. Most states which regulate land treatment systems require this, and as a result of their experience, Israel has also instituted this policy.<sup>20</sup>

Land treatment can also have an environmental impact if the water cycle is interrupted by diverting it from its natural destiny. Suppose a water supply for a city is formed by an impoundment on a stream. If that city discharges its wastewater back into the stream below the impoundment, then there is a comparatively small loss of volume; that which is taken from the stream is returned to it. If the city now changes over to a land treatment system, much of the water removed from the stream evaporates, and the resulting deficit could have a devastating effect on the stream ecosystem at low flow unless it is compensated for by flow augmentation.

This effect can cut both ways, depending on the water supply source. University Park, Pennsylvania, obtains its water from wells. When a land treatment system was opened there in 1964, the natural hydrologic regimen was restored instead of interrupted, with groundwater aquifers being recharged by the renovated wastewater. Officials report that the level of the water table has now stabilized, whereas previously it had been dropping rapidly.<sup>21</sup> The groundwater recharge potential makes land application a particularly attractive treatment option in the coastal regions of North Carolina, where groundwater supplies are very common. Along the coast, land application can prevent salt water intrusion into freshwater aquifers, while further inland, land application may partially neutralize the impacts of growing urbanism and phosphate mining on the water table. The sandy coastal soils would allow high application rates, and in fact there may be a danger from soils which are too permeable. If infiltration is too rapid, then the wastewater could pass through the soil filter before renovation is complete, with a consequent pollution of ground water.

## social impacts

Land treatment may impose real social costs on the residents of a community due to the enormous amount of land required. These costs, moreover, will be borne disproportionately by those living in the vicinity of the application site. For example, if we assume a site density of 50 people per square mile (about the average for Chatham County), the 3700-acre land requirements of the Durham-Chapel Hill example discussed earlier would require the forced relocation of about 300 people. In addition, those living near the site may find their property values lowered to reflect public distaste for waste treatment operations. As a result, one can visualize significant public opposition to land application, similar perhaps to the furor raised over the location of a sanitary

landfill.

Both forms of opposition were evident during the land acquisition stage of the Muskegon County, Michigan, project. Residents within the site denounced the "Communist land grabbers," while elsewhere in the community a number of signs went up proclaiming "sewer city."<sup>22</sup> Nonetheless, these problems were overcome in spite of the project's colossal size.

The Muskegon experience suggests several avenues for overcoming public opposition. First, the public needs to be educated on the degree of health risk involved in a land treatment program. Public fears are probably greatly exaggerated. Second, the agency in charge should be very careful in relocating institutions of particular sentimental concern, such as schools, churches, or cemeteries. Third, local political leaders should be firmly committed to the project. Fourth, relocatees should at all times be treated generously and fairly. Though this may increase land costs somewhat, the land acquisition process will be speeded tremendously.

As noted, land treatment often offers a substantial economic advantage over surface discharge systems in situations where advanced treatment is required. Prior to the passage of the 1972 Amendments, economic advantages were not perceived by local communities, because the cost of acquiring the land was not covered by federal grants made under the old Water Pollution Control Act. This meant that land treatment was discriminated against in favor of more capital-intensive methods. In the 1972 Amendments, the term "treatment works," for which federal grant monies could be used, was redefined to include "site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment."<sup>24</sup>

The 1972 Amendments also require that recipients of waste treatment construction grants consider alternative waste management techniques and apply the "best practicable waste treatment technology."<sup>25</sup> EPA's recently published draft guidelines for determining BPWTT<sup>26</sup> are quite favorably disposed to land treatment; in fact, these guidelines state that land treatment is the method of choice unless the evidence is clear that an alternative is superior in a given situation. These two aspects of federal policy should combine to make land application much more acceptable to local communities, and a rapid proliferation of land treatment sites is to be expected.

It is apparent from reading the guidelines and the 1972 Amendments that the federal decision to embrace land treatment was based entirely on cost-effectiveness criteria and on a commitment to encourage recycling as a national policy. Beyond a tacit assumption that the market value of the land would approximate social costs, the potential effects on community land use were evidently not considered. It should be clear, however, that a land treatment system may have a profound effect on land use, but not necessarily a detrimental one, especially if the community is prepared for it.

As planners, then, it would be appropriate for us to consider how land application might affect land use. For example, a land treatment site may be located in such a way as to affect the direction and intensity of growth. In addition, perhaps we should begin to investigate ways in which land treatment might be used in concert with other local objectives. Two examples will be given here. First, the land treatment site could be used as a park or public open space, as long as appropriate provisions to protect the public health were made. This is one alternative to using the site for agriculture, and in fact treated wastewater has been used to irrigate Golden Gate Park in San Francisco.<sup>27</sup> Secondly, a commercial airport could be surrounded by a land treatment site instead of residential development. Such social or land use criteria for location of the application site may conflict in some cases with economic or environmental considerations, but they should be part of the decision-making process.

#### Footnotes

<sup>1</sup>C.E. Young and G.A. Carlson, "Economic Analysis of Extending Land Spreading Technology to the Southeast," **Proceedings, Atlanta Workshop on Recycling Municipal Wastewater on Land**, Water Resources Research Institute, Clemson University (June,

#### conclusion



1974).

<sup>2</sup>C.L. Barth, "Analysis of Findings and Priority Research Needs Related to Engineering and Management Aspects of Systems In Recycling Municipal Wastewater on Land," **Atlanta Workshop**, *op. cit.*

<sup>3</sup>"Water Treatment and Reuse by Land Application," Office of Research and Development, U.S. Environmental Protection Agency, (August, 1973). Disposal of high-BOD cannery waste by overland flow has resulted in BOD concentrations in the effluent being reduced from 800 mg/1 to 2 mg/1.

<sup>4</sup>"Draft Guidelines for Areawide Waste Treatment Management," U.S. Environmental Protection Agency, (May, 1974), Chap. 10.

<sup>5</sup>C.M. Weiss has conducted a number of water quality and preimpoundment studies on the Haw and New Hope Rivers. See for example "Water Quality Characteristics of the New Hope and Lower Haw Rivers—July 1966-February 1970," Report No. 48, Water Resources Research Institute of the University of North Carolina, Raleigh, N.C., (1971).

<sup>6</sup>Spray irrigation rates vary between 1 and 2.5 inches per week, typically, while overland flow rates between 2 and 6 inches per week have been used. See "Water Treatment and Reuse by Land Application," *op. cit.*

<sup>7</sup>The 22-mgd flow allows for 1 mgd rainfall on the impoundment. Assuming that conditions are too wet to allow land application 10% of the time, or about 35 days per year, the effective rate is 1.8 inches per week.

<sup>8</sup>Assuming roughly a square application site, 300 acres will allow about a 100-yard buffer zone.

<sup>9</sup>"The Muskegon County Plan of Wastewater Reuse," **Public Works**, Vol. 45, No. 10, (October, 1973).

<sup>10</sup>J. Lamb *et al.*, "Preliminary Engineering Report: Chapel Hill, N.C. Wastewater Treatment Alternatives," Dept. of Environmental Sciences and Engineering, School of Public Health, University of North Carolina at Chapel Hill, (1973).

<sup>11</sup>"Water Treatment and Reuse by Land Applications," *op. cit.*

<sup>12</sup>R.R. Parizek *et al.*, "Wastewater Renovation and Conservation," Pennsylvania State University Studies No. 23, University Park, Pa., (1967).

<sup>13</sup>Lamb, *op. cit.*

<sup>14</sup>G.A. Carlson and C.E. Young, "Economic Analysis of Adoption of Land Treatment of Municipal Wastewaters," Water Resources Research Institute of the University of North Carolina, Report No. 98, (1974), p. 5.

<sup>15</sup>86 Stat. 816.

<sup>16</sup>W.L. Lindsay, "Inorganic Reactions of Sewage Wastes with Soil," **Recycling Municipal Sludges and Effluents on Land**, Proceedings, Joint EPA-USDA Conference, Champaign, Ill., (July, 1973). See also R. L. Chaney, "Crop and Food Chain Effects of Toxic Elements in Sludges and Effluents" in the same Proceedings.

<sup>17</sup>"Water Treatment and Reuse by Land Application," *op. cit.* See also "Soil Microbiological Aspects of Recycling Sewage Sludges and Waste Effluents on Land," Proceedings, Joint EPA-USDA Conference, *op. cit.*

<sup>18</sup>"Water Treatment and Reuse by Land Application," *op. cit.*

<sup>19</sup>W. Leseman, "Engineering and Management Aspects of Systems Designed for the Recycling of Municipal Wastewater on Land," **Atlanta Workshop**, *op. cit.*

<sup>20</sup>"Survey of Facilities Using Land Application of Wastewater," Environmental Protection Agency, (1973).

<sup>21</sup>R.R. Parizek, *op. cit.*

<sup>22</sup>J.C. Postlewait and H.J. Knudsen, "Some Experiences in Land Acquisition for a Land Disposal System for Sewage Effluent," Joint EPA-USDA Conference, *op. cit.*

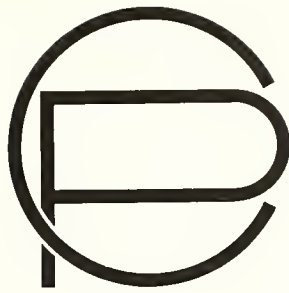
<sup>23</sup>*Ibid.*

<sup>24</sup>86 Stat. 844.

<sup>25</sup>86 Stat. 834.

<sup>26</sup>"Alternative Waste Management Techniques for Best Practicable Waste Treatment," Draft, EPA, Office of Water Program Operations, (March, 1974).

<sup>27</sup>"Survey of Facilities Using Land Applications of Wastewater," *op. cit.*



# coastal area management act: regional planning for the state's coastal area

by Arthur Cooper and Stuart George

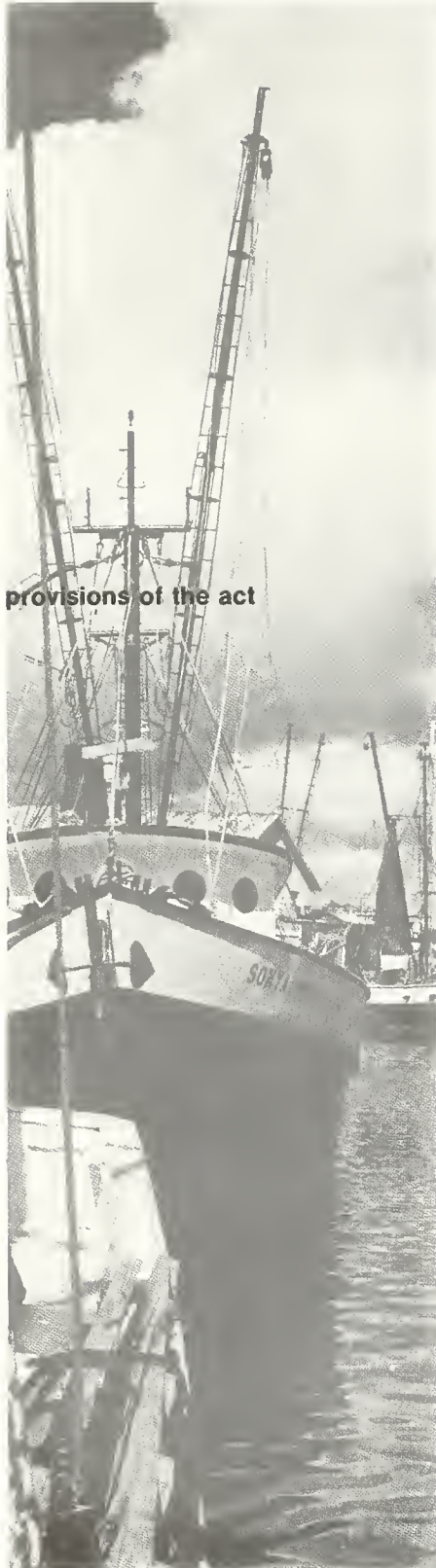
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"In recent years the coastal area has been subjected to increasing pressures which are a result of the often conflicting needs of a society expanding in industrial development, in population, and in the recreational aspirations of its citizens. Unless these pressures are controlled by coordinated management, the very features of the coast which make it economically, esthetically, and ecologically rich will be destroyed. The General Assembly therefore finds that an immediate and pressing need exists to establish a comprehensive plan for the protection, preservation, orderly development, and management of the coastal area of North Carolina."

## COASTAL AREA MANAGEMENT ACT OF 1974 Legislative Findings and Goals

Born of necessity and molded in perseverance, the Coastal Area Management Act of 1974 is perhaps the most comprehensive piece of environmental legislation ever forged by the North Carolina General Assembly. After several years of study and deliberation outside the legislative corridors, the concepts of regional land use planning and resource management for the coast were introduced during the 1973 session of the General Assembly. Unsuccessful in that year of political transition, the bill was redrafted and reintroduced on the second day of the following session; it was ratified, after a series of dramatic twists and turns, on the day prior to adjournment.

The concept of coastal resource management in North Carolina began to take shape in the mid-1960's. With rapid development increasing pressure on the lifestyle, resource base, and economic well-being of the area, consecutive legislative sessions drafted and approved bills dealing with coastal property ownership, dune protection, and dredge and fill operations. In 1969, the legislature instructed the Commissioner of the Division of Commercial and Sports Fisheries to formulate legislative recommendations for a comprehensive plan to protect and manage North Carolina's estuaries. A special committee of State and local officials, knowledgeable about coastal resource problems, assisted the Commissioner in this work, and it produced the



provisions of the act

framework for the Coastal Area Management Act. The Act was revised thoroughly several times, tempered by public hearings and lengthy committee debate, and amended during hours of tense floor debate.

The duties in the adopted bill are twofold: immediate land use planning by local governments for the entire twenty-county coastal area and a program of coordinated resource management to effectively utilize the decreasing supply of natural resources and the limited supply of investment capital available to the coastal area.

The legislation establishes a quasi-judicial body of private citizens, the fifteen-member Coastal Resources Commission, within the Department of Natural and Economic Resources (DNER), to supervise the Department staff in coordinating and directing the implementation of the Act. Most of the members are nominated by county or municipal governing bodies in the coastal counties. The Act empowers the Governor to select twelve people from the list of local nominees, plus three additional members at his discretion.

Commission members must have experience in certain areas of expertise: commercial fishing, wildlife or sports fishing, marine ecology, coastal agriculture, coastal forestry, coastal land development, marine-related business, engineering, conservation, finance, and local government. The purpose behind the selection process is not to offer a representative for each interest group, but to provide expertise from each of the functions which orchestrate the coastal area lifestyle.

The bill has a number of requirements which are apportioned between State government and local government in a clearly specified and carefully-tuned fashion. Perhaps the key feature of the bill is its statement that the responsibility for land use planning rests with local government; State government is to provide general standards and play a coordinating role. The basic provisions of the bill are as follows:

1. Criteria for definition of the coastal area are specified. Any county adjacent to or bounded by the Atlantic Ocean or any coastal sound is included in the coastal area. Application of these criteria produces a list of twenty counties in the coastal area.
2. The Coastal Resources Commission is established.
3. A Coastal Resources Advisory Committee, composed of representatives of state agencies, professional groups, and local government representatives, is established to advise the commission and State government during the planning process.
4. A comprehensive program of planning by local governments is mandated. The Commission must prepare a set of guidelines, consisting of statements "of objectives, policies, and standards to be followed in the public and private use of land and water areas within the coastal area." Local governments must base their planning on these guidelines.
5. The Commission is empowered to designate certain geographic parts of the coastal area as areas of environmental concern (AEC's) — areas where environmental or social conditions require that care be exercised during development. Areas that may be designated as AEC's include marshes, estuarine waters, renewable resources areas, fragile or historic areas, public trust areas, hazard areas, and areas impacted by key facilities.
6. Once an area is designated as an AEC, a permit must be obtained from the Commission before any development is carried out therein. This provision insures that a maximum degree of care will be exercised during development. A plan for coordinating existing State permit programs in the coastal area must also be developed to assure conformity in their administration.

The Commission and the DNER have moved ahead rapidly in implementing this legislation. The Commission was appointed in early July, 1974, and has met monthly since. Planning guidelines were drafted by the Office of State Planning during the summer, subjected to extensive review by local government and interested citizens during the fall, and approved by the Commission on January 27, 1975. Recommendations for interim areas of environmental



concern were prepared by the Department and subjected to six public hearings during late August and early September, 1974. During October, 1974, each local government in the coastal area signified its desire to carry out its own planning under terms of the Act. Criteria for planning grants to local governments by the DNER were prepared during the fall and, in early January, 1975, the Secretary of DNER announced planning grants to twenty counties and forty-two municipalities totalling almost \$700,000. These funds come from State appropriations, a grant from the Office of Coastal Zone Management, the Department of Commerce, and other regional planning funds available to DNER.

Land use planning is underway in all of the counties. By November 23, 1975, each city and county preparing a plan must submit it for review and comment by the Coastal Resources Commission. The work is being done under guidelines which were approved by the Commission in January, 1975. These guidelines set uniform standards and specifications for all land use plans and recommend a time frame for carrying out planning activities. Specifically, each plan must catalog the natural and economic resources of the planning area and must contain a statement by the citizens of their goals and objectives for their community. A land use map must be prepared by the professional planners, and a land classification map must be included in the final plan.

Most of the effort will be concentrated at the county level, but all county plans will incorporate municipal land use plans from the beach towns and larger inland towns. To insure coordinated planning, the Act allows for municipal planning to be integrated into the county-wide planning in a variety of ways. All beach towns and inland communities that enforce a zoning ordinance, subdivision regulations, and the State Building Code are entitled to submit land use plans directly to the Coastal Resources Commission. The Act allows other communities to offer recommendations to the county planning board or to actually have responsibility delegated from the county for planning activities within the community.

Completion of the local government planning and plan approval by the commission prior to the November 23, 1975, deadline may prove very difficult. Consequently, thought is being given to extending the planning and implementation deadlines contained in the Act. Legislation to this end will undoubtedly be considered by the 1975 General Assembly.

Of the thirty states that have an ocean or Great Lakes shoreline, at least twenty-seven have coastal zone management programs in effect or under development. However, the North Carolina program has been labeled one of the best programs in the nation by the United States Department of Commerce. Two reasons for its quality are the network of mutual cooperation levels of government and the role delegated to the public in shaping the future of the region.

Throughout the journey of the coastal area management concept from the study commission drafts, through public hearings and legislative debate, each turn was marked by further decentralization of responsibility and a greater involvement of all levels of government. The larger the responsibility placed in the bill, the greater the dispersion of control. Initial discussions of the management program placed a heavy burden of authority and control with the State. First, the regional advisory commission evolved; then, a citizens commission with the power of initiative and control emerged in the final legislation. The Advisory Council provides additional expertise to the Commission and serves as a liaison between local and State government and the Commission. In addition, the provision in State law which prohibits dual office-holding was bypassed so that local government representation could be achieved on each of these two groups.

Not all of the coordination and cooperation was legislated. While the Act required the Coastal Resources Commission to produce a set of guidelines for local planning, the Commission has gone a step further. On its own initiative, the Commission authored an "Introduction and Summary" to its proposed guidelines, which first pointed out the role of the "citizen-planner" in the implementation of the Coastal Area Management Act. In the words of that

**role of the citizen planner**

document, published last fall:

"The purpose of these State Guidelines is to assist local governments in each of the 20 coastal area counties with preparation of their own individual land use plans.

"Each county and each city or town within a coastal county is encouraged to develop a plan which reflects the desires, needs and best judgment of the citizens residing within its boundaries.

"When completed, these 20 individual county land use plans will form the basis for a 'comprehensive plan for the protection, preservation, orderly development, and management of the coastal area of North Carolina,' which is the primary objective of the Coastal Area Management Act of 1974.

"It is, therefore, essential that each of the municipal plans and each of the 20 county plans not only take into consideration the geography, the economy and the traditional life style of the local area, but is also in harmony with the plans developed by the other 19 coastal counties.

"In this way the people of the coastal area, working through their local officials and with the assistance of professionally trained specialists, can realize the goals of the Coastal Area Management Act of 1974— 'To insure the orderly and balanced use and preservation of our coastal resources on behalf of the people of North Carolina and the nation.' "

To maximize the role of the citizen-planner in the short time allocated for preparing land use plans under the Act, the Coastal Resources Commission has also produced and distributed an appendix to the local planning guidelines entitled, "Handbook on Public Participation." Significantly, when the pamphlet was first conceived, it was entitled, "Handbook for Elected Officials on Public Participation," but the Commission felt that the thrust of the planning effort should originate at the grass roots level and proceed upward through the local planners and planning board, the local governing board, and the lead regional organization before reaching the commission. So the pamphlet was widely distributed to as many people as possible from the various geographical, occupational, and ethnic categories within each planning district.

The public participation appendix addresses itself to the first half of the planning process: the collection of data and the statement of community goals and objectives for the development and lifestyle of each community. According to the local planning guidelines, each plan must not only state these facts and opinions, but include how they were collected and evaluated. The preface to the handbook places the input requirements into perspective:

"There are two basic steps in getting citizens to participate in the land use planning process.

"The first is information—making sure that the individual understands the problems and the procedures.

"The second is involvement—getting the individual to take an active part in evaluating present land uses and planning for future land uses.

"In order to secure effective and widespread public participation, it is necessary to give equal emphasis to both steps on a continuing basis, for it accomplishes little to inform the citizen without encouraging him to participate in the planning process, and even less to get him involved if he is not informed."

Most of the informational routes listed in the handbook are the traditional outlets such as mass media, a speakers bureau, and a direct telephone line into the commission offices. However, the involvement methods are quite ambitious. Among the recommendations are the establishment of county-wide citizens advisory committees, a network of community advisory councils, and a sub-stratum of neighborhood advisory groups for urban areas. Membership composition can be arranged by social or occupational basis; appointments may be made by the city or county planning board or by the city council or board of county commissioners.

The liaison function is the major role for the citizen advisory board at any level. Members of the board act as carriers for information from the planning board, and they collect ideas and data from the public and return this information to

the planning board.

Attracting a citizen army of this type and expecting a meaningful flow of communication would ordinarily meet with marginal success at best. But given the excitement generated over the legislation and the awareness of the Act's importance to the property values and future lifestyle of the coastal area, creating grass roots interest has not been a problem in the counties that have begun their citizen participation programs.

Citizen involvement will peak in these last few months before the actual lines uniting the summary of data with the statement of goals and objectives will be drawn on paper. Land use maps for the coastal area counties will outline alternatives for developing each community's resources in line with that community's aspirations. To supplement the land use maps, a land classification system has been developed for statewide application. Each land use plan will include a land classification map that shows the five basic applications of land: agricultural, rural or crossroads communities, urban areas, urban expansion areas, and conservation lands such as floodplains, forests, parks, wetlands, dunes, beaches, and other areas where development should be controlled or restricted.

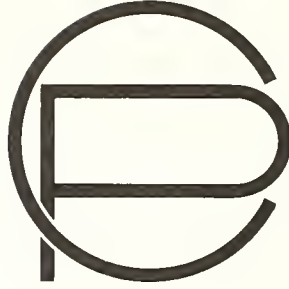
The conservation areas that will appear on land classification maps in the coastal area counties will correspond very closely with the second major responsibility of the Coastal Resources Commission under the Coastal Area Management Act—the designation of areas of environmental concern. In line with federal coastal zone management legislation, the North Carolina Act provides for recognition of such important areas. These are areas that are biologically fragile, subject to severe alteration from nature, or are significant for cultural or historical reasons. To provide for the protection and orderly development in areas designated as AEC's, the Act calls for a coordinated permit system for all land-disturbing activities occurring in one of these areas. Existing legislation already requires a permit from any one of a variety of government agencies for many such activities. When the areas are designated by the Commission during 1975 and 1976, the permit coordination requirements of the Act will, hopefully, make it more straightforward to obtain necessary authorization for most developments either from the Coastal Resources Commission or the local government.

When the coordinated permit system is in effect and land use plans are in operation, the progress of 20 eastern North Carolina counties will have switched from pressure-oriented haphazard development to planned and monitored self-control. A companion bill dealing with the problems of the western mountain counties of North Carolina is under study by the 1975 General Assembly. As with the Coastal Act, this legislation will respond to the needs and opinions of the citizens on a regional basis. It will point an eye and ear toward the positive and negative effects of outside influence on the development of the region.

The time for regional planning and management is now. With the increased demands placed on our resources by our complex and mobile society, managing renewable and non-renewable resources and obtaining the optimum benefit from our limited capital is a challenge we must accept. Land use planning programs such as the Coastal Area Management Act provide mechanisms whereby the use of our natural resources can be balanced by their preservation, the rights of one citizen to use his property can be balanced against the effects that use will have on the rights of other citizens, and the economic needs of present generations can be balanced against the need to preserve as wide an array of future options as possible.







# earnings in north carolina: an analysis of the industrial mix and local effects

**Robert Crow** and **Peter Stroup** both concentrated in regional development while at UNC, and they both received a Master of Regional Planning in May. This article is a revised version of a paper prepared for the Office of State Planning. The authors wish to acknowledge the valuable input of Dr. Lynn Muchmore and Mr. Alton Skinner III of the Office of State Planning and of Dr. Emil Malizia of the DCRP.

by **Robert Crow** and **Peter Stroup**

The impressive growth of economic activity in the State of North Carolina since World War II has been accompanied by a rather disappointing performance in per capita personal income. It now seems apparent that the rapid rate of closure between North Carolina and the rest of the United States in per capita personal income has declined in recent years. Further, economic projections indicate that North Carolina will likely continue to experience little growth in per capita income relative to the nation.<sup>1</sup>

Per capita personal income is perhaps the most widely accepted and applied social indicator of the quality of life in a region. While per capita income is primarily an economic indicator, both economic and non-economic variables may affect its level. For example, high dependency ratios reflect a relatively lower percentage of the population in working ages and tend to depress per capita income. The labor force participation rate and the unemployment rate account for that part of the working age population actually employed. Together these factors determine the proportion of society employed in the economy. Earnings received in exchange for labor service account annually for more than four-fifths of total personal income in North Carolina, the remainder being composed of proprietors' income, property income, and transfer payments.

While the factors mentioned above are influenced by social, cultural, and institutional forces which constantly change over time, a firm understanding of the current position of the economy is prerequisite to any successful intervention. To this end, the factors currently accounting for the difference in average earnings between North Carolina and the nation as a whole will be examined. This difference is defined as the **earnings gap**. The earnings gap may be considered a product of two distinct effects.

First is the **industrial mix effect**, which accounts for that part of the earnings gap attributable to the differences in the distribution of United States and North Carolina workers among sectors of the respective economies. If the North Carolina economy contained a disproportionately large amount of low-

paying industries, there would be an earnings gap even if all North Carolina employees received the average United States earnings for their respective industries. The second effect is the **local effect**, which accounts for the proportion of the earnings gap accounted for by employees in a North Carolina industry receiving earnings different than the national average for the same industry. Through a modified share analysis, the relative contributions of the two effects to the North Carolina earnings gap may be analytically separated and individually examined.

Define:

$\bar{w}_i^{US}$  = mean weekly earnings for United States workers in industry  $i$   
 $\bar{w}_i^{NC}$  = mean weekly earnings for North Carolina workers in industry  $i$   
 $\phi_i^{US}$  = percent of all United States workers employed in industry  $i$   
 $\phi_i^{NC}$  = percent of all North Carolina workers employed in industry  $i$   
 $w^{US}$  = average weekly earnings of all United States workers  
 $w^{NC}$  = average weekly earnings of all North Carolina workers

The earnings gap is by definition  $w^{US} - w^{NC}$ , which may be mathematically manipulated to the equivalent form of:

$$(1) \sum (\bar{w}_i^{US} - w^{US}) (\phi_i^{NC} - \phi_i^{US}) + \sum (\bar{w}_i^{US} - w^{NC}) \phi_i^{NC} = \text{earnings gap}$$

Equation (1) is the formulation of the earnings gap to be used in this analysis.

The first term of equation (1),  $\sum (\bar{w}_i^{US} - w^{US}) (\phi_i^{NC} - \phi_i^{US})$ , is identifiable as the industrial mix effect and measures the portion of the earnings gap attributable to the relative prevalence of specific industries in the two economies. The industrial mix term is independent of the North Carolina earnings structure, demonstrated by the absence of factor  $w^{NC}$ . The magnitude of the industrial mix term is determined by the difference between the United States and the North Carolina industrial mix and the national earnings level for each industry.

The industrial mix term would equal zero if the North Carolina industrial mix were identical to that of the United States, as is apparent if  $\phi_i^{NC}$  is replaced with  $\phi_i^{US}$ . Likewise, if all employees nationwide received the same average earnings, there would be no "low-wage" or "high-wage" industries, and the industrial mix term would again equal zero. This can be seen if  $w^{US}$  is replaced with  $\bar{w}^{US}$ . That the industrial mix term in either case would equal zero, regardless of the structure of North Carolina earnings by industry, is true since the industrial mix term is independent of intra-industry regional earnings differentials.

The second term in equation (1),  $\sum (\bar{w}_i^{US} - w^{NC}) \phi_i^{NC}$ , accounts for that part of the earnings gap attributable to the differential in earnings between an industry in North Carolina and earnings in the same industry nationwide. This term is the local effect. If all employees in North Carolina received earnings identical to those of their counterparts nationwide,  $\bar{w}_i^{US} - w^{NC}$  would equal zero for all industries, and the local effect would contribute nothing to the gap in average weekly earnings between the United States and North Carolina. Although the term  $\phi_i^{NC}$  is used to weight each industry's contribution to the local effect, the local effect term does not contain the term  $\phi_i^{US}$  and is therefore independent of the variation of industrial mix between the state and the nation.

The disaggregation of the earnings gap into these two independent component parts not only provides a more descriptive formulation of the problem, but is also necessary for the analysis of alternative policy choices to reduce the earnings gap. If the earnings gap is primarily due to industrial mix, ameliorative policy must aim at alteration of the economic structure of the State; if the earnings gap is mainly accounted for by the local effect, programs must strive to narrow the national-State earnings difference within each industry. Thus, the local and industrial mix effects measure two distinct phenomena, each pointing toward a different avenue of intervention.

To analyze the two effects, the North Carolina economy was disaggregated into twenty-nine industrial sectors. For each sector, the local and industrial mix effects were calculated using 1971 data. The specific gap examined pertains to

differences in average weekly earnings. No correction for differences in average numbers of hours worked per week was attempted. Thus this analysis does not identically reflect differences in wage rates but is a close approximation.

## results

Results of the analysis are shown in Table I. It is apparent that the earnings gap between the State of North Carolina and the United States is attributable in varying proportions to the effects of both local earnings differentials and industrial mix differentials between the State and the nation as a whole. In the explanation of the results, the following terminology will be used:

**Low wage industry** - the national average earnings of workers in the industry is below the national average for all industries.

**High wage industry** - the national average earnings for workers in the industry is above the national average for all industries.

**Over-represented industry** - the percentage of North Carolina workers in the industry is greater than the national percentage of workers in the industry.

**Under-represented industry** - the percentage of North Carolina workers in the industry is less than the national percentage of workers in the industry.

## industrial mix effect

Nearly thirty-eight percent of the differences between national and State average weekly earnings may be attributed to the adverse effects of the current sectoral mix in the State economy. The figures in Table I reveal a dominance of the State economy by industrial sectors in which earnings are less than the national average of \$126.59. It should be kept in mind, however, that the individual industrial mix figures represent effects of the North Carolina sectoral mix **at the prevailing national average weekly earnings in the particular sectors**. Thus, the State is penalized for both having a relatively large proportion of employment in sectors in which earnings are below the national average in the nation as a whole and having a relatively small proportion of employment in sectors which have earnings above the overall national average.

There are two groups of industries whose industrial mix components of the earnings gap tend to increase the difference between North Carolina and United States average weekly earnings:

### I. low wage - over-represented industries

Agriculture, Forestry, and Fisheries  
Tobacco Products  
Textile Mill Products  
Apparel and Needle Products  
Furniture and Fixtures

Group I accounts for over thirty-four percent of North Carolina employment but less than ten percent nationwide. As a group, the low wage - over represented industries account for \$6.64 of the industrial mix component of the earnings gap.

### II. high wage - under-represented industries

Mining and Quarrying  
Food and Kindred Products  
Petroleum and Coal  
Printing and Publishing  
Rubber Products  
Stone, Clay, and Glass Products

Group II industries employ less than nineteen percent of the North Carolina labor force as compared to the national average of over thirty-one percent. This group of high wage - under-represented industries accounts for \$4.43 of the industrial mix component of the earnings gap.

The two groups of industries which tend to decrease the industrial mix component of the earnings gap are:

### III. high wage - over-represented industries

Construction  
Lumber and Wood Products  
Motor Freight

Group III accounts for 8.7% of the North Carolina labor force, while nationwide the comparable figure is 7.6%. Due to the slight over-representation of these



industries, this group **decreases** the industrial mix component of the earnings gap by \$0.38.

- Leather Products
- Wholesale and Retail Trade
- Finance, Insurance, and Real Estate
- Services
- Miscellaneous Manufacturing

Group IV employs 38.3% of the North Carolina labor force, compared to 51.4% nationwide. Since employees in these industrial sectors receive earnings below the national average for all industries, the under-representation of this group in North Carolina **decreases** the industrial mix component of the earnings gap by \$2.79.

The relative predominance in North Carolina of industries in groups one and two overshadows the favorable effects of groups three and four. Overall, the cumulative effect of the differential variation in North Carolina and United States industrial mix accounts for \$7.91 of the \$21.34 North Carolina earnings gap.

Of the \$21.34 difference in average weekly earnings, \$13.43, roughly sixty-two percent, is directly attributable to workers in a specific industry in North Carolina earning less than the national average for that same industry. It is noteworthy that in only four of the twenty-eight sectors examined were North Carolina average weekly earnings higher than comparable national figures. These four sectors, tobacco products, professional and scientific instruments, wholesale and retail trade, and finance insurance and real estate, account for twenty-three percent of the employed labor force in the State.

The remaining seventy-seven percent of the employed labor force in North Carolina works in sectors in which earnings are below national sectoral averages. Deficits in average weekly earnings range from \$3.23 in paper and allied products to \$88.68 in contract construction. North Carolina employees in the later sector earn less than sixty percent of the national average. The construction sector alone contributes \$4.88 of the \$13.43 deficit attributable to North Carolina's local effect.

With the exception of the four sectors with earnings above national averages and the construction industry, contributions to the gap in average weekly earnings are relatively evenly distributed among the remaining sectors. Notable contributors to the local effect are: services (\$1.53); agriculture (\$.95); transportation, communication, and utilities (\$.77); textile mill products (\$.76); and food and kindred products (\$.72).

The total effect of any given industry on the earnings differential is the sum of the local effect plus the industrial mix effect. The primary overall contributors to the \$21.34 gap in average weekly earnings are: construction (\$4.71); textiles (\$3.56); transportation, communication, and utilities (\$1.46); public administration (\$1.39); transportation equipment (\$1.38); and apparel (\$1.21). Several other sectors, including food and kindred products, furniture, primary metals, electrical machinery, and non-electrical machinery also contribute substantially.

Of the twenty-nine sectors, only five contribute negatively to the earnings gap; that is, on the balance their relative earnings and mix tend to reduce the earnings differential. Four of the five sectors are low wage, under-represented industries whose relative absence in the North Carolina economy tends to offset the detrimental effects of the industry on average earnings. The remaining industry is tobacco manufacturing, a low wage, over-represented industry, which reduces the gap slightly because of its local effect.

It is noteworthy that none of the high wage industries, whether over- or under-represented in the North Carolina economy, currently contribute to a decrease in the earnings gap. For the three high wage, over-represented sectors, the possible gains due to the favorable industrial mix are more than offset by the low earnings in these sectors when North Carolina is compared to national figures. The most striking example is the construction industry, whose local

**IV. low wage -  
under-represented industries**

**local effect**

**total effect**

effect of \$4.88 dominates the favorable industrial mix effect of -\$0.17. In the sixteen high wage, under-represented industries, the principle reason for the absence of a reduction in the earnings gap is the under-representation of the industries themselves. However, many of these industries suffer significant local effects as well. The transportation equipment sector, for example, contributes \$0.32 and \$1.06 to the local and industrial mix effects, respectively, for a total contribution in the earnings gap of \$1.38.

TABLE 1  
CONTRIBUTIONS TO AVERAGE WEEKLY EARNINGS GAP

INDUSTRY GROUP		LOCAL EFFECT	INDUSTRIAL MIX EFFECT	TOTAL EFFECT
	SIC			
Agr., For., Fish.	01-09	\$0.94	\$2.64	3.58
Min. & Quarrying	10-14	0.09	.27	.36
Construction	15-17	4.88	-.17	4.71
Food & Kindred Prod.	20	0.72	.04	.76
Tobacco Manufacturers	21	-0.25	.13	-.12
Textile Mill Prod.	22	0.76	2.80	3.56
Apparel & other Needle	23	0.45	.76	1.21
Lumber & Wood	24	0.44	-.002	.44
Furniture & Fixtures	25	0.42	.31	.73
Paper & Allied Prod.	26	0.03	.00	.03
Printing & Pub.	27	0.25	.21	.46
Chemicals	28	0.40	.00	.40
Petroleum & Coal	29	0.007	.19	.20
Rubber Products	30	0.13	.01	.14
Leather & Leather Prod.	31	0.01	-.05	-.04
Stone, Clay & Glass	32	0.23	.05	.28
Primary Metal Ind.	33	0.13	.62	.75
Fabricated Metal	34	0.19	.24	.43
Nonelectrical Mach.	35	0.50	.35	.85
Elec. Mach., Equip. & Sup.	36	0.60	.03	.63
Trans. Equip.	37	0.32	1.06	1.38
Prof. & Sci. Ind.	38	-0.002	.05	+.05
Misc. Man.	39	0.04	-.04	0.00
Trans., Comm., Utilities	40-41			
except Motor Freights	43-49	0.77	.69	1.46
Motor Fr. Trans & Wh.	42	0.44	-.21	.23
Wholesale & Retail Trade	50-59	-0.95	-1.03	-1.98
Finance, Ins, Real Es.	60-67	-0.41	-.09	-.50
Service Ind.	70-79	1.53	-1.58	-.05
Public Admin.		0.76	.63	1.39
TOTAL		\$13.43	\$7.91	\$21.34
Total as %				
of earning gap		62.9%	37.1%	

## reducing the gap

Currently, the principle contribution to the differential in average weekly earnings between North Carolina and the United States as a whole is attributable to the local effect of low earnings in the State as compared to the nation as a whole. It is useful to examine appropriate policies for the reduction of the gaps in terms of the four industrial groups outlined previously.

Group I includes the low wage, over-represented industries of agriculture, tobacco, textiles, apparel and furniture. Together, they account for forty-two percent of the earnings gap. Since the principle detrimental effect of these sectors is their relative predominance in the North Carolina economy, adjusting earnings to closely approximate national earnings in these industries would have little effect in reducing their contribution to the earnings gap. The adverse effects of group one industries are best ameliorated by orienting future industrial development away from these industries so as to reduce the proportion of the North Carolina labor force working in these sectors. While an increase in the share of these industries in North Carolina may seem sound, it will only serve to widen the average earnings gap between the State and the nation as a whole, barring the unlikely development of a local negative local effect.

Group II includes sixteen high wage, under-represented industrial sectors. In this case, North Carolina's average earnings are adversely affected by the

relative absence of these industries in the State economy and also, to a lesser extent, by the lower weekly earnings accruing to North Carolinians in these sectors. While it is important to insure that North Carolina workers in these sectors receive at least national earnings levels, future development policy is critical. To reduce the earnings gap, expansion of these industries at the expense of group one industries is appropriate.

Group III includes the three high wage industries in which North Carolina has a relatively larger share of employment than the nation. While the over-representation is a plus for the State in terms of industrial mix, North Carolina suffers from low average weekly earnings accruing to employees in these sectors. To reduce the contribution of these industries to the earnings gap, it is therefore imperative to raise weekly earnings relative to the nation. This would reduce the overall earnings gap by twenty-eight percent.

Group IV includes five low wage, under-represented industries. Currently, North Carolina benefits by the relative absence of these sectors in the State economy. The only contribution to narrowing the earnings gap which may ever be made by these sectors is through continuing the under-representation and through an increase in average earnings relative to the nation.

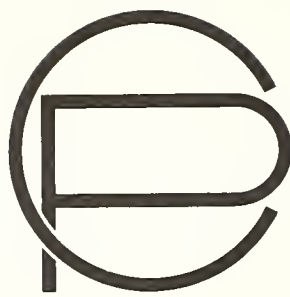
The differential between North Carolina's average weekly earnings and that of the nation as a whole is attributable to lower earnings accruing to North Carolina employees for equivalent work and the over-representation of low paying industrial sectors in the State economy. To reduce the differential, State policy could be directed at correcting the local effect. This action alone would reduce the earnings gap by nearly sixty-three percent. Further, the remaining thirty-seven percent of the earnings gap may be narrowed by appropriate future industrialization of the State, favoring high wage over low wage industrial sectors.

Throughout this investigation, the United States economy has been taken as the norm, and policy interventions have been discussed in terms of moving the North Carolina economy closer to the national average. Of course, North Carolina economic development need not view the national average as a ceiling, to be approached only asymptotically. Naturally, some states are well above the national average weekly earnings level. However, the analysis will still prove useful, even if this were the case for North Carolina. The only difference would be that the total gap would be negative, and policies to raise per capita personal income would still strive to reduce (make more negative) the local and industrial mix effects.

**Footnotes**

<sup>1</sup>c.f. United States Water Resources Council, **1972 OBERS Projections: Regional Economic Activity in the United States**, (Washington: September, 1972), p. 140.





# the north carolina humble case and its impact on planned unit developments

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by **Frederick Carr**

Through the years, the planning profession has been seeking alternative land use guidance tools to co-exist with the traditional zoning and subdivision regulations that encourage conventional land-consuming, lot-by-lot designs. These regulations tend to establish a pre-set formula of standards, which is applied generally to all conditions regardless of environmental constraints. Standards within zoning ordinances and subdivision regulations are rigid and detailed since they are required to be self-administrating by the appropriate agency. This requirement has been established through the American courts in an effort to prevent conditions conducive to arbitrary decisions by governmental agencies.<sup>1</sup> On the other hand, planners have recognized the need for another tool to provide developers with an alternative development choice having more flexible criteria.

Such an alternative land use guidance tool is the planned unit residential development. . . . hereafter referred to as PUD. Exactly what is a planned unit development? A good description would be a unitary site plan which integrates housing types, roads, and facilities, and which clusters dwelling units for the preservation of open spaces and natural features.<sup>2</sup> The objectives of this development alternative and supporting ordinances have been well delineated by an American Society of Planning Officials study. They are as follows:

- (1) To promote flexibility in design and permit planned diversification in the location of structures;
- (2) To promote the efficient use of land in order to permit a more economic arrangement of buildings, roadways, land use, and utilities;
- (3) To preserve to the maximum extent the existing natural features and environmental amenities and provide structures and uses which are in harmony with the natural surroundings;
- (4) To provide more usable and suitably located recreational and other common facilities which could not be provided under more conventional land development procedures;
- (5) To combine and coordinate different architectural styles, building forms and building relationships within planned unit

development; and

(6) To insure a quality of construction commensurate with other developments within a community.<sup>3</sup>

Thus, planners view the PUD as one sound development alternative for those people disenchanted with "cookie cutter" subdivisions. In order to meet the above land development and design objectives, development requirements must be embodied within some legally enforceable public instrument. Such instruments are represented by a planned unit development ordinance, a special use or conditional use permit, and a floating zone stipulation contained in a zoning ordinance. Within these instruments, as they relate to a PUD, lot sizes, setback lines, yard areas, building height, and dwelling unit types may be varied to achieve particular design objectives and to obtain provisions for open space, common areas, public utilities, and basic public improvements.

The use of a PUD can preserve much flexibility in design, arrangement, and mixture of housing types. After all:

... planned unit development ought not to be constrained by the minutiae that invariably find their way into standard zoning and site planning control.<sup>4</sup>

The flexibility of development criteria theoretically will promote open ended negotiations among the community's planners, appropriate public officials, and the developers.

In North Carolina, planned unit development is controlled within a local government's zoning ordinance. For development requiring more flexible regulations, the State zoning enabling legislation authorizes municipalities to issue special use permits. This grant of power is stated in the following manner:

... the board of adjustment or the city council may issue special use permits. ... in the cases or situations and in accordance with the principles, conditions, safeguards, and procedures specified. ... and may impose reasonable and appropriate conditions and safeguards upon these permits. Where appropriate, such conditions may include requirements that street and utility rights of way be dedicated to the public and that provisions be made for recreational space and facilities.<sup>5</sup>

A special use permit is issued for a particular use which an ordinance permits in a designated zone; this permit does not change the underlying zoning classification of the district in which the proposed use will be located. If a municipality adopts and incorporates the special use permit process into its zoning ordinance, then the ordinance must clearly specify the special use permit principles, the conditions that can be exacted, and the procedures to be followed in the granting or denial of a permit. The community must assure that development will not negatively impact upon the neighboring property values nor create situations in which the general health, welfare, and safety of the public is threatened. Therefore, conditions imposed by the permit must be carefully and closely related to some aspect of the government's police power; these conditions become legally enforceable like any portion of the zoning ordinance.

A recent North Carolina Supreme Court case, **Humble Oil and Refining Company v. Board of Aldermen of the Town of Chapel Hill**, dealt with some special use permits, and the decision should have significant ramifications.<sup>6</sup> The Court ruled that the Board of Aldermen failed to follow the proper procedure outlined within the town zoning ordinance in denying the petitioner's request for a special use permit. In this particular case, the Board of Aldermen failed to defer their decision until the Planning Board had time to review the proposal and offer its recommendations.<sup>7</sup> The Supreme Court indicated that the purpose of this provision in the zoning ordinance is to:

... insure that every application for a special use permit receives the same careful, impartial consideration. Thus, whether the application is to be allowed or denied the Board of Aldermen must proceed under standards, rules, and regulations uniformly applicable to all who apply for a permit.<sup>8</sup>

## planned unit development in north carolina

## the humble case and the state's special use permit process





Here the importance of the constitutional right of due process is emphasized in actions which affect the disposition of private land use by individual property owners.

The Court was also concerned that arbitrary decisions might arise from public hearings dealing with special use permits. It pointed out that the Board of Aldermen was conducting a quasi-judicial hearing. Due to this special condition, the Board must adhere to rules of procedure applicable to any court review. The Court ruled that the following procedures must be strictly followed:

- (1) The party whose rights are being determined must be given the opportunity to offer evidence, cross examine adverse witnesses, inspect documents, and offer evidence in explanation and rebuttal;
- (2) A board may not base findings as to the existence or non-existence of crucial facts upon unsworn statements; and
- (3) Crucial findings of fact which are unsupported by competent, material and substantial evidence in view of the entire record as submitted cannot stand. (Note: . . . If a party makes a subjective statement, he must back it up with reliable facts).<sup>9</sup>

In summation, the Supreme Court of North Carolina delineated four requirements a community must follow in any permit procedure:

- (1) The board must follow the procedures specified in the ordinance;
- (2) It must conduct the hearings in accordance with fair trial standards;
- (3) It must make its decision upon findings of fact based upon competent, material, and substantial evidence;
- (4) In allowing or denying an application, the board must state the basic facts on which it relied with sufficient clarity so the affected parties and any court will understand what induced its decision.<sup>10</sup>

The ramifications of this decision on any North Carolina community's special use permit process seems to be substantial, especially if one considers Chapel Hill's experience to be a common example. Obviously, the importance of due process was reinforced as an important principle to be followed at all times. Yet this decision might have an interesting impact upon the overall permit granting process. As an example, the final granting or denial process in Chapel Hill must be clarified. To grant a permit, the Board of Aldermen must decide that the proposal is consistent with four findings of fact:

- (1) That the use will not materially endanger the public health or safety if located where proposed and developed according to the plan as submitted and approved;
- (2) That the use meets all required conditions and specifications (e.g., as stipulated in the zoning ordinance);
- (3) That the use will not substantially injure the value of adjoining or abutting property, or that the use is a public necessity; and
- (4) That the location and character of the use if developed according to the plan is submitted and approved will be in harmony with the area in which it is to be located and in general conformance with the plan of development of Chapel Hill and its environs.<sup>11</sup>

With the character of the factual evidence established by the Humble Case, the burden of proof that an application meets these four findings falls upon the applicant, who must factually display beyond reasonable doubt that his proposed use will completely satisfy these findings. On the other hand, to deny a permit, the opposition to a proposal, whether the town planning staff or privately affected parties, must provide documented facts displaying the reasons this proposal fails to meet the four findings. Theoretically, the Court's requirement that the Board of Aldermen consider only sworn evidence, which met the standards set forth in the Humble decision, in their application of the zoning ordinance's four findings rule might stimulate several positive results in the Chapel Hill permit process:

- (1) The developer is induced to be sensitive to the community's development plan for Chapel Hill, the impact of his proposal upon the surrounding neighborhood's property value, and the public welfare and safety. He is forced to make a case for his proposal by



carefully analyzing these latter elements and how his use meets the four findings;

(2) Private opposition to a proposal is now induced to fully familiarize itself with the community's development policy and the four findings procedure. Thus, their presentation becomes more professional and organized because their opposing statements must be supported by factual evidence to qualify as formal evidence to be weighed against the proposal;

(3) The Board of Aldermen must confine its rigorous analysis to the sworn testimony presented at the public hearing and weigh it in accordance with the four findings. Now the importance of a comprehensive town development plan and zoning ordinance is obvious because the information contained within each is entwined in the four findings. With the goals, objectives, and standards set forth in these two documents, a governing body has a solid benchmark with which to analyze a proposal's consistency with a community's development plans and desired patterns of growth. One of Chapel Hill's problems in this special use permit process is that it presently lacks a formally approved comprehensive development plan, and the difficulty this situation poses to the Board of Aldermen and other involved town commissions will be discussed later.

## uniqueness of the north carolina humble decision

The Humble Case certainly is not unique just to North Carolina. For example, through its court system, Oregon confronted many of the same issues in the case of **Fasano v. Board of Commissioners, Washington County**. Here too, the court distinguished between quasi-judicial and legislative actions performed by local governing bodies dealing with land use decisions. In this case, the Court offered the following test in determining the latter distinction:

One must determine whether an action produces a general rule or policy which is applicable to an open class of individuals, interests, or situations, or whether it entails the application of a general rule or policy to specific individuals, interests or situations. If the former determination is satisfied, there is legislative action; if the latter determination is satisfied, the action is judicial.<sup>12</sup>

The Oregon Supreme Court then proceeded to explain that it is:

... not part of the legislative function to grant permits, make special exceptions, or decide particular cases. Such activities are not legislative, but administrative, quasi-judicial. . . . in nature.<sup>13</sup>

With this statement in mind, the Court determined this particular land use case, which dealt with a zoning change to accommodate a specific land use, was judicial in nature. Therefore, the Court was concerned that this zoning change request was not measured in accordance with certain standards (e.g., compatibility with the county's comprehensive development plan), nor was the county decision opened to public scrutiny through a public hearing conducted according to court room procedures. Since the Court recognized that many governmental agency decisions concerning land use are judicial, it required the same court room procedures mandated in the later North Carolina Humble Case and the basic requirements for factual evidence. This action was a mandate to provide equitable procedures for land use decisions and review in order to preclude arbitrary decisions, which violate the property owner's and the developer's constitutional right of due process and other basic rights attached to their land. Thus, not only was the zoning process (e.g., zoning changes, special exceptions, conditional use permits) opened up to the scrutiny of the public hearing and the official record, but this decision also placed the burden of proving these latter actions are necessary directly upon the petitioner.

While these two independent cases do not represent a documented trend in the treatment of land use proposals before governments today, they may be an indicator of a future trend. Equity in land use decisions has continually confronted local government. Perhaps the efforts of these two state supreme courts to mandate court room procedures in hearing, reviewing, and deciding the acceptability of certain land use proposals in the quasi-judicial realm will encourage greater equity and objectivity to be applied to all land decisions

affecting the private land owner's bundle of rights and the public interest.

## questions raised by the decision

The benefits this Court decision may encourage in subsequent land decisions have been amply covered in past discussions. On the other hand, North Carolina planning agencies and local governments must be aware of several potential problems resulting from their own Court's decisions. These problems are:

- (1) A shift to a more judicial process might very well remove the proceedings from what a common man and his neighbors can comprehend to a new kind of forum where only lawyers can function. This situation means more expense for those aggrieved property owners as well as developers;
- (2) This decision appears to go against the poor, and it discourages people from presenting information (e.g., the spectre of cross examination);
- (3) Further, the added preparation required in all such cases is bound to overload the agenda of planning commissions and take away time from dealing with policy and plans on which these very special use permits depend.

## impact of the humble case on the special use permit process in chapel hill

In Chapel Hill, planned unit development has been named unified housing development, and to pursue this type of residential construction, one must apply to the Board of Aldermen for a special use permit. After the Humble decision, a recent application for a unified housing development special use permit in this community not only displayed the impact of this court case on the permit process, but also raised several other key issues pertinent to any community in North Carolina.

In review, for the Board of Aldermen to grant or deny a special use permit, this Board must base its decision solely on the official facts presented at the public hearing and determine whether all four findings of fact have been satisfactorily met by the proposal. The burden of proof that all four findings have been met is entirely up to the petitioner. If any doubt of meeting one finding is established, then that finding is grounds for the Board to reject the application.

The proposed project in question was a unified housing development comprised of 225 condominium units located just outside Chapel Hill's corporate limits, but well within the community's planning jurisdiction. The developer wanted to establish a closed, private development with a single entrance and no public thoroughfares or access to contiguous property. He also mentioned the possibility of a guard gate provided to insure the security of the development, contingent upon approval by the homeowners association.<sup>14</sup>

The Board of Aldermen denied the grant of a special use permit for the project because it failed to meet two of the required four findings of fact:

- (1) Finding 1. This Board determined the development would materially endanger the public health and safety if located where proposed and developed according to the plan as submitted for two reasons. First, at the public hearing a traffic consultant established that the project's traffic generation would burden an already congested road system and would provide potential hazards at various interchanges in the area. Finally, there were logistical problems in providing the project with ample public water and sewage connections the developer desired;
- (2) Finding 3. The petitioner failed to clearly establish that the proposal would not damage substantially the value of adjoining or abutting property.<sup>15</sup>

Even though this permit proposal was denied based upon the factual evidence provided only at the public hearing, the Planning Board and Town Planning Staff displayed a growing feeling of uneasiness with this development and similar ones to follow outside the corporate limits of the city. A key issue both groups identified was that a development of this nature and size in predominantly undeveloped sector of the community should be timed in conjunction with improvements of transportation routes in the project area.<sup>16</sup> Yet the community cannot legally deal with the timing and sequence of development in the extremities of the planning district by following its Thoroughfare Plan and

providing road improvements or extensions for areas existing outside the city limits. The lesser public roads outside the town may be built only by the North Carolina Department of Transportation or by developers, subject to this latter Department's standards (especially if State maintenance is expected).

The lack of a formally approved comprehensive development plan was another issue identified by the Planning Board. The Planning Board did not have a community approved statement of policy, goals, or objectives embodied within a comprehensive plan which it could use to determine whether or not a particular proposal is consistent with desired community development patterns. Without such an official document, Chapel Hill is placed in a precarious position when it attempts to establish that a proposal is inconsistent with the fourth finding of fact, i.e. that the special use permit is in harmony with the area in which it is located and in general conformity with the plan of development of Chapel Hill and its environs. Therefore, during a public hearing subject to the Humble Case's stipulations, the town's governing body and professional staff are forced to find substantive areas of concern in the remaining three findings when confronted with a development proposal which might stimulate growth patterns not wanted by the community government.

The Humble Case seemed to constrain one aspect of the PUD or unified housing development concept in Chapel Hill — the effectiveness of negotiation between the developer and the planning staff. Negotiation implies compromises between both the developer and a planning staff in order for each to obtain the desired end product. However, little contact occurs between these two actors, and perhaps this latter Court decision is one explanation for this situation. The public hearing is conducted in a court room atmosphere, with the Board of Aldermen eventually making the final grant or denial for a special use permit, subject to the official evidence presented. This situation certainly decreases the level of negotiation since the planning staff cannot legally commit itself to any compromises in density for design objectives. However, the degree this situation negatively impacts upon the product design is debatable.

On the positive side, the Humble Case seems to have increased the level of professionalism in all aspects of the special use permit process in Chapel Hill. Certainly the developer is induced to be sensitive to the community's plans, policies, and ordinances. On the other hand, the Planning Board and staff, the Appearance Commission, and the Board of Aldermen must analyze any proposal's potential impacts on the surrounding site area and the town and establish whether the project is consistent with the appropriate plans, policies, and ordinances. This entire process mandated by the Humble decision becomes very educational, and it may help elected and appointed governing bodies in other North Carolina communities who have their own permit system to identify factors constraining their ability to make effective land use decisions. Once these factors are identified, solutions to alleviate their constraining character can be found. For example, in Chapel Hill, the Planning Board felt uneasy without formally mandated development policies which adequately confront the issues presented by current development proposals. They recognized the need for a formal, comprehensive development plan with which to guide their decisions concerning a wide variety of projects.

In sum, the process mandated in the North Carolina Humble Case causes communities regulating PUD's with special use permits to face planning issues similar to those faced by Chapel Hill. These issues must be confronted constructively in the immediate future.

#### Footnotes

<sup>1</sup>Jan Krasnowiecki, "Legal Aspects of Planned Unit Development in Theory and Practice," **Frontiers of Planned Unit Development**, (New Brunswick, New Jersey: Center for Urban Policy Research, 1973), p. 100.

<sup>2</sup>Frank F. So, David R. Mosena, and Frank S. Banks, Jr., **Planned Unit Development**



**Ordinances**, American Society of Planning Officials, (1973), p. 1.

<sup>3</sup>**Ibid.**, p.11.

<sup>4</sup>Jan Krasnowiecki, **op. cit.**, p.100.

<sup>5</sup>**North Carolina General Statutes**, Article 19, 160A-381.

<sup>6</sup>284 N.C. 458.

<sup>7</sup>**Ibid.**

<sup>8</sup>**Ibid.**

<sup>9</sup>**Ibid.**

<sup>10</sup>**Ibid.**

<sup>11</sup>Chapel Hill, **Ordinance Providing For The Zoning of Chapel Hill And Surrounding Areas**, Section 4-B, p. 46.

<sup>12</sup>Department of Justice, the State of Oregon, **Attorney General's Opinion on the Fasano v. Board of County Commissioners, Washington County**, (1973).

<sup>13</sup>**Ibid.**

<sup>14</sup>Chapel Hill, **Minutes of a Public Hearing and a Regular Meeting of the Mayor and Board of Aldermen of the Town of Chapel Hill Held in the Town Hall**, (Subject: The Laurel Hills Condominium Special Use Permit), (October 14, 1974), pp. 1-15.

<sup>15</sup>Chapel Hill, **Minutes of a Public Hearing and a Regular Meeting of the Mayor and the Board of Aldermen of the Town of Chapel Hill Held in the Municipal Building**, (November 11, 1974), p. 3.

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